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Soil Conservation Service

Bismarck North Dakota



### ANNUAL REPORT OF FIELD PLANTINGS IN NORTH DAKOTA

1986



**Prairie Rose** 

### United States Department of Agriculture Soil Conservation Service

1986 Report of
Plant Materials Field Plantings
in
North Dakota

by

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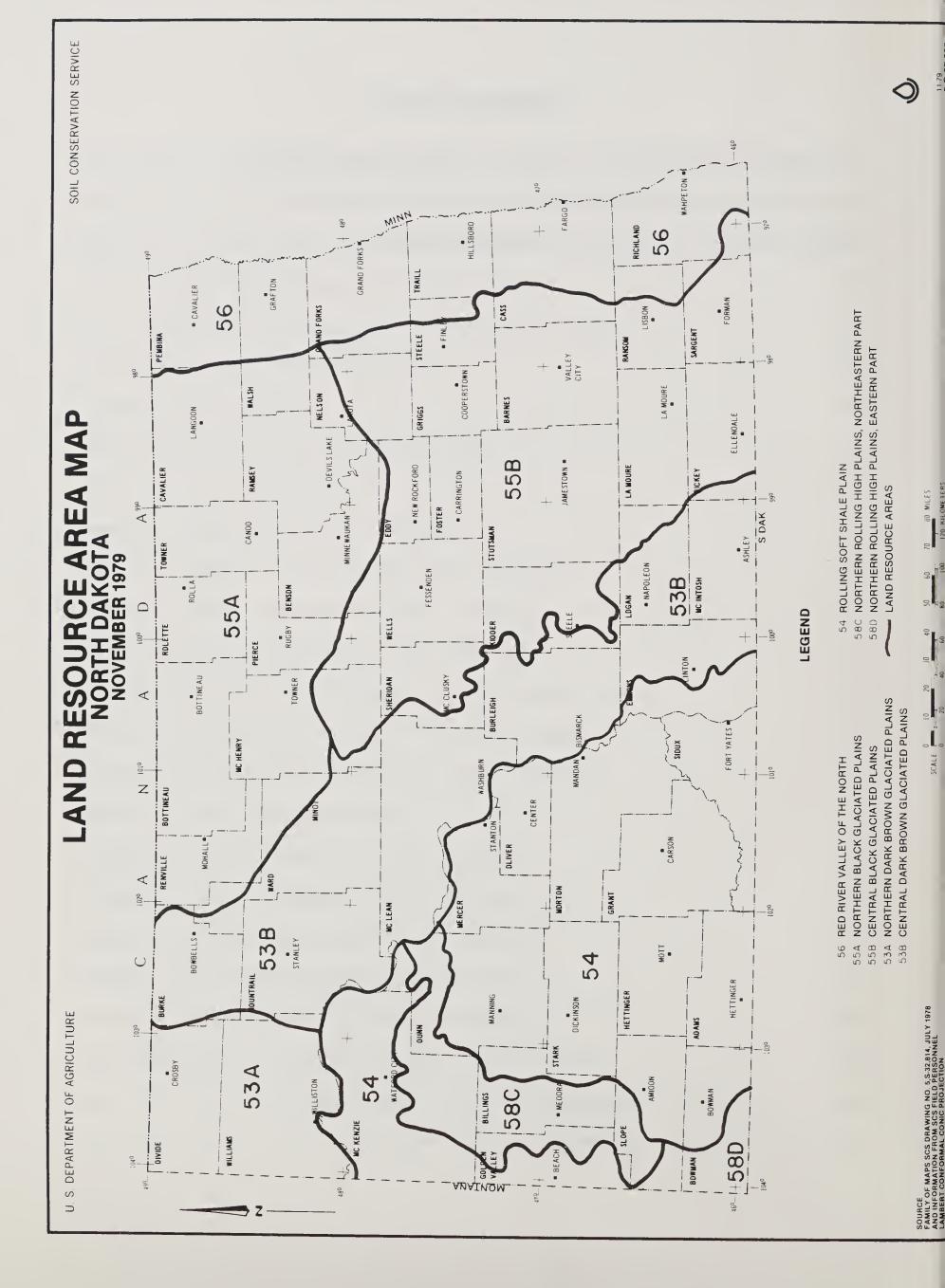
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This report is prepared to summarize the plant materials field and seed increase planting activities in North Dakota.

Field plantings are the final evaluation of plants and techniques that have demonstrated superiority in studies at the PMC or in field evaluation plantings. These plantings will determine potential of the plants under actual use conditions and provide valuable data to document release as a new cultivar. Seed increase plantings are established to provide commercial supplies of conservation plants.

A long range plan has been developed on each plant, based on input by the Plant Materials Specialist and area and state specialists. Field planting long range plans project the number, size, purpose, location, seed need, and evaluations for the accession in final testing. Field planting long range plans are updated each year and consideration is given to other potential field plantings as they arise, if they meet the objectives of the long range plan. The Plant Materials Specialist works with the district conservationists, area and/or state staff in laying the ground work for each planting. (Refer to Long Range Plans and Planting Guides for current high priority needs for field planting sites.)

By definition all herbaceous field plantings will be considered active for three years; tree and shrub plantings for five years and then transferred to the inactive list. Inactive planting records will be maintained indefinitely in the field office file. Follow-up evaluations will be made of selected species and/or accessions at the request of the State PM Committee. All active field plantings were evaluated in 1986 (see list of active plantings). In addition, high priority will be given to evaluate inactive plantings of the following species:

ND-14 harbin pear

ND-283 Russian almond

ND-11 amur honeysuckle

ND-444 indiangrass

ND-629 amur maple

NDG-4 big bluestem

ND-95 prairie sandreed

NDG-965-98 switchgrass

ND-93 green needlegrass

There are several elements of a successful planting:

- 1. Conservation district supervisors are involved in planning, selecting cooperators, monitoring, and publicizing results of the planting.
- 2. The cooperator is fully informed about the objectives of the planting, and understands the culture and management required for a successful planting.
- 3. The planting should be of a size which can be a management unit and part of a planned RMS.
- 4. The planting fits with district objectives and field office goals.
- 5. SCS technicians or specialists provide the systematic follow-up in the establishment, maintenance, and evaluation of the planting.

Cooperation from area and field office personnel has been excellent. Establishment, management, and evaluation of the type and number of field plantings needed to properly test a superior plant selection would be impossible without their help.

Of special interest in this and future reports should be the summary reports that have been generated from data received from field plantings. These are examples of reports that can be generated from the plant materials data base system. The data can be sorted in many other ways. These reports should give field office personnel an opportunity to see how their plantings are performing in comparison with others in the state under a variety of situations. Data for other species or from other states in the PMC service area is available upon request.

### HIGHLIGHTS OF ACTIVITIES AT THE BISMARCK PLANT MATERIALS CENTER

The USDA Plant Materials Center, Bismarck, North Dakota primarily serves the states of North Dakota, South Dakota and Minnesota. Activities are directed toward meeting the needs and priorities set forth in the 3 states long-range programs.

The objectives and functions of the Plant Materials Center are to:

- 1. Identify, select and improve plants to meet the resource conservation needs of the three states.
- 2. Determine cultural techniques for successful propagation and establishment of these plants.
- 3. Assemble and comparatively evaluate materials on and off the center.
- 4. Make comparative field plantings for final testing of promising plants and techniques with Conservation Districts and cooperators.
- 5. Work with Universities, Experiment Stations, and other State and Federal Agencies to cooperatively release improved conservation plants.
- 6. Produce limited quantities of foundation or foundation quality seed. This seed is made available to Conservation Districts, State Seed certifying organizations, commercial seed growers, or other agencies for establishing seed increase fields or seed orchards.
- 7. Encourage Conservation Districts, commercial seed growers, and commercial and state nurseries to produce adapted plant materials and named cultivars.

### TREE AND SHRUB IMPROVEMENT

Within the three states, there is a need to improve the quality and quantity of species available for field and farmstead windbreaks, erosion control on cropland and critical areas, surface mine reclamation, recreational areas, wildlife habitat, and barrier plantings. The objective of the woody improvement program is to assemble, evaluate, increase and release cultivars with improved survival, growth rates, form, winter hardiness, fruit production, disease resistance or other valuable characteristics. Most projects are cooperative with various state, local and federal agencies, tree improvement foresters, scientists, and others with similar objectives.

### Field Evaluation Plantings (multi-species).

The SCS has entered in memorandums or agreements with soil conservation districts, state universities and other state and federal agencies at thirteen locations in North Dakota, South Dakota and Minnesota to provide cooperative field evaluation planting sites with long term land tenure for testing of woody plant materials. These agreements provide sites for initial evaluation of species and cultivars under diverse soil and climatic conditions. They represent major land resource areas and key windbreak suitability groups. Initial evaluations are recorded on individual spaced plants or rows under uniform culture and management conditions.

Project 38I302K - North Dakota Game and Fish Department, McKenzie Slough Game Management Area, McKenzie, North Dakota. Soil series-texture: Savage silty clay loam, MLRA: 053B, WSG: 3; 338 accessions of 126 species.

Project 38I305K - Herman Brothers Farm, Brinsmade, North Dakota. Soil series-texture: Svea-Buse loam, MLRA: 055A, WSG: 1, 8; 153 accessions of 59 species.

Project 38I308K - North Dakota State University, Bottineau Branch, Bottineau, North Dakota. Soil series-texture: Barnes-Aastad Complex, MLRA: 055A, WSG: 3; 130 accessions of 57 species.

Project 38I316K - North Dakota State University, Dickinson, Branch Experiment Station, Dickinson, North Dakota. Soil series-texture: Parshall fine sandy loam, MLRA: 054, WSG: 5; 61 accessions of 35 species.

Project 38I32IK - North Dakota State University, Williston Branch Experiment Station, Williston, North Dakota. Soil series-texture: Williams loam, MLRA: 053A, WSG: 3; 28 accessions of 19 species.

Project 38I323K - Morton County Parks, Sweet Briar Recreation Area, Mandan, North Dakota. Soil series-texture: Stady loam, MLRA: 054, WSG: 6; 79 accessions of 63 species.

Project 38I314K - USDI, Fish and Wildlife Service, National Wildlife Refuge, Lake Andes, South Dakota. Soil series-texture: Highmore silt loam, MLRA: 055C, WSG: 3; 84 accessions of 45 species.

Project 38I319K - U.S. Forest Service, Buffalo Gap National Grassland, Cottonwood, South Dakota. Soil series-texture: Kyle silty clay, MLRA: 060A, WSG: 4; 67 accessions of 46 species.

Project 38I315K - South Dakota State University Central Research Station, Highmore, South Dakota. Soil series-texture: Williams silt loam, MLRA: 053C, WSG: 3; 118 accessions of 56 species.

Project 38I318K - University of Minnesota, West Central Experiment Station, Morris, Minnesota. Soil series-texture: Barnes-Buse loam, MLRA: 102A, WSG: 3, 8; 89 accessions of 52 species.

Project 38I320K - University of Minnesota, Northwest Experiment Station, Crookston, Minnesota. Soil series-texture: Bearden silty clay loam, MLRA: 056, WSG: 1; 56 accessions of 38 species.

Project 38I325K - University of Minnesota, Westport, Minnesota, Center Pivot Irrigation System. Soil series-texture: Esterville sandy loam, MLRA: 91, WSG: 7; 21 accessions of 18 species.

Project 38I340K - Minnesota Department of Natural Resources, Rochester, Minnesota. Soil series-texture: Mt. Carrol silt loam, MLRA: 105; 79 accessions of 33 species are planned for establishment.

Current Status: Assembly and evaluation continues for each project. The following accessions show potential for further evaluation and release:

Accession Number	Genus/species	Origin/source
ND-654 5652T	silver maple Acer saccharinum	Pembina Co., ND
SD-13 5888T	green ash Fraxinus pennsylvanica	Potter Co., SD
SD-156 5890T	green ash Fraxinus pennsylvanica	Deuel Co., SD
ND-647 5887T	black ash Fraxinus nigra	Res. Sta., Morden, MB, Canada
ND-630 6096T	bur oak Quercus macrocarpa	Barnes Co., ND
Mich-768 12606T	horizontal juniper Juniperus horizontalis	USDA-SCS, PMC, East Lansing, MI
ND-25 5741T	downy hawthorn Crataegus mollis	NDSU, Fargo, ND
PI-370126	willow Salix sp.	Plant Introduction Sta., Ames, IA
ND-21 34900T	nannyberry Viburnum lentago	USDA, ARS, Mandan, ND
SD-131 6073T	mayday Prunus padus	Moody Co., SD
ND-1029 6086T	chokecherry (yellow fruit) Prunus virginiana	Logan Co., ND
ND-3905 35215T	dwarf artic willow Salix purpurea nana	NDSU, Fargo, ND
ND-3904 35214T	blue fountain willow Salix sp.	NDSU, Fargo, ND
ND-3745 19584T	forsythia Forsythia europea x. ovata	P.I. Sta., Ames, IA
ND-428 5970T	black walnut  Juglans nigra	NDSU, Fargo, ND
ND-450 6119T	Redman elderberry Sambucus racemosa	USDA, ARS, Cheyenne, WY

Accession Number	Genus/species	Origin/source
ND-500 5977T	Siberian larch Larix sibirica	Res. Sta., Morden, MB Canada
ND-673 6214T	mountain ash Sorbus aucuparia	Res. Sta., Morden, MB, Canada
PI-323957	black chokeberry Aronia melanocarpa	P.I. Sta., Ames, IA
ND-1134 47203T	hardy plum Prunus sp.	W. Hermann, Miller, SD
ND-3779 29137T	Manchurian poplar Populus sp.	Lee Nursery, Fertile, MN
'Darts Golden' 19601T	dwarf ninebark Physocarpus opulifolius	P.I. Sta., Ames, IA
ND-3744 19577T	Korean barberry Berberis sp.	NDSU, Fargo, ND

Tree and Shrub Seed Source Studies and Assemblies. These studies involve (1) a search for superior trees and shrubs in natural stands, shelterbelts and plantings of known origin; (2) initial evaluation in test plantations on sites selected to represent major land resource areas or seed zones; (3) selection and increase of superior plants (seed increase crossing blocks); (4) advanced studies to determine cultural methods; and (5) final testing in field plantings to further evaluate performance and area of adaptation.

Project 38I015J - Evaluation of chokecherry, (Prunus virginiana). In 1979, SCS field office personnel were instrumental in locating stands and collecting a total of 179 accessions from North Dakota, South Dakota and Minnesota. Without their concerted effort and cooperation such large scale assemblies would not be possible. Seedlings grown at the PMC were transplanted in the spring of 1983 into test plantations near Bismarck and Pierre. Experimental design is a randomized block with some blocks incomplete. Accessions are replicated 5 times with 4 trees per replication. Survival at the North Dakota site was 95% in 1985. One hundred fifty of the original 179 accessions were established. Survival totaled 61% at the South Dakota planting in 1984. In North Dakota, chokecherry growth rates ranged from 33 to 71 cm/year. Heights reached up to 290 cm (9.5 feet) in 1986. Both tree-like and dense suckering forms are apparent. Differences in size and growth rates based on north-south latitudinal origin are not yet visible at this early age. Plans are to innoculate the South Dakota plantation with western-X disease in order to screen the population for resistance to this serious pathogen. Dr. Glenn Peterson, Plant Pathologist, USDA Forest Service, Lincoln, NE, will conduct the innoculation. vigor, plant height, and crown width were recorded in 1986.

- Project 38I012J Evaluation of silver buffaloberry, (Shepherdia argentea). SCS field personnel collected 134 accessions in North Dakota and South Dakota in 1977-79. Four additional accession were obtained from the Canada Agriculture Research Station, Morden, Manitoba. Seedlings grown at the PMC were transplanted into test plantations near Bismarck and Pierre in the spring of 1983. Experimental design is the same as the chokecherry project. The South Dakota planting has been discontinued because of poor survival. Survival at the North Dakota site was 85% in 1985. Out of the original assembly, 101 accessions are represented. Growth rates averaged 17 to 54 cm/year. Several accessions have exceeded heights of 250 cm (8 feet) in 1986. Survival, vigor, plant height, and crown width were recorded in 1986.
- Project 38I013J Evaluation of hawthorn, (Crateagus sp). SCS field personnel collected seed from 139 accessions in North Dakota and South Dakota in 1976-79. An additional 45 collections of introduced species were obtained from the Canada Agriculture Research Station, Morden, Manitoba. Seedlings were transplanted into test plantations near Bismarck and Pierre in 1983. Experimental design is the same as the chokecherry and buffaloberry projects. From the original assembly, 75 native and 31 introduced accessions were established. Survival at the North Dakota site was 98% in 1985. Unfortunately, because of poor survival the South Dakota planting has been discontinued. Despite moderate deer browse, growth rates in North Dakota averaged 15 cm/year, ranging from 0 to 23. Some accessions have exceeded a height of 125 cm (4.0 feet) in 1986. Introduced species are generally more vigorous at this early stage. Survival, vigor, plant height, crown width, and disease and insect resistance were recorded in 1986.

Project 38I333K - Evaluation of hackberry, (Celtis occidentalis).
GP-13 Technical Committee Cooperative Provenance Test.

Dr. Richard A. Cunningham, Study Coordinator, USDA-ARS, Mandan, ND.

Objectives of the study:

- 1. Identify the extent and patterns of genetic variability within hackberry growing in ND, SD, MN, NE, IA, MO, KS, OK, AR and Manitoba, Canada.
- 2. To identify the seed sources of hackberry best adapted for planting in ND, SD, MN, NE, IA, MO, KS, OK, and AR.
- 3. To provide a highly variable gene pool that could be utilized for future selections and breeding.

Current Status: The assembly of seed sources is now complete. A total of 293 (4 in 1979, 58 in 1982, 86 in 1983, 98 in 1984, 47 in 1985) field collections were processed at the USDA-SCS, PMC, Bismarck, North Dakota. Clean seed amounts range from 8 to 3,439 grams. The PMC greatly appreciates the positive response and excellent cooperation from most states and SCS personnel assisting with the collections. Only a small number of zones in the study area were inadequately sampled or not collected. Seed lots from fifty of the 55 designated zones encompassing 9 states and the Province of Manitoba, Canada were received.

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23 Collections - (2-1979, 14-1982, 0-1983, 0-1984, 7-1985)
North Dakota
              39 Collections - (2-1979, 6-1982, 4-1983, 15-1984, 12-1985)
South Dakota
              29 Collections - (9-1982, 11-1983, 0-1984, 9-1985)
Minnesota
              69 Collections - (14-1982, 31-1983, 16-1984, 8-1985)
Nebraska
              56 Collections - (11-1982, 17-1983, 24-1984, 4-1985)
Kansas
              19 Collections - (3-1982, 4-1983, 11-1984, 1-1985)
Oklahoma
              29 Collections - (0-1982, 19-1983, 9-1984, 1-1985)
Iowa
Missouri
              24 Collections - (0-1982, 0-1983, 23-1984, 1-1985)
               4 Collections - (4-1985)
Arkansas
               l Collection - (1-1982)
Canada
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A total of 219 accessions (4 replications each) were planted at the USDA-SCS PMC, Manhattan, Kansas in November, 1986. One year old bareroot seedlings will be raised and shipped to cooperating researchers for establishment in 17 or more test plantations in the central and northern plains. According to germination tests conducted by the ARS, potential production is 193,000 seedlings.

### Selection and increase of superior plants (seed orchards)

Project 38S317K USDI, Fish and Wildlife Service, Apple Creek Township, Burleigh County, North Dakota.

Current status: Forty to fifty plants of each of the following accessions have been established in a spaced plant isolated seed orchard. Seed harvested from this orchard will be provided to nurseries when varieties have been released for commercial production.

'Cardan' green ash (469226) Fraxinus pennsylvanica 'Midwest' Manchurian crabapple (478000)Malus baccata mandshurica 'Big Horn' skunkbush sumac (483445)Rhus trilobata 'Oahe' hackberry (476982)Celtis occidentalis ND-14Harbin pear (478004) Pyrus ussuriensis

ND-313 (477999)	red tatarian honeysuckle Lonicera tatarica sibirica
ND-629 (477992)	amur maple Acer ginnala
'Sakakawe (478005)	silver buffaloberry Shepherdia argentea
'Scarlet' (478003)	Mongolian cherry Prunus fruticosa
SD-131 (6073T)	Mayday Prunus padus
ND-177 (5729T)	Cotoneaster integerrima
ND-1134 (47203T)	hardy plum Prunus sp.

### Final Evaluation and Release Schedule - Woody:

Accession No.	Species	Projected Year of Release
ND-177 PI-113095	European cotoneaster Cotoneaster integerrima	1986–87
ND-11 PI-477998	amur honeysuckle Lonicera maackii	1987-88
ND-20 5731T	Arnold hawthorn Crataegus arnoldiana	1988-89
ND-629 PI-477992	amur maple Acer ginnala	1988-89
ND-1879 11850T	honeylocust Gleditsia triacanthos	1989-90
ND-83 6228T	late lilac Syringa villosa	1989-90
ND-283 6079T	Russian almond Prunus tenella	1989-90
ND-14 PI-478004	harbin pear  Pyrus ussuriensis	1988-89

### GRASS IMPROVEMENT

Native grasses and closely related introduced species are needed for critical area stabilization, erosion control, wildlife habitat, pasture and hayland, rangeland and surface mine revegetation. Adapted cultivars are still needed for many warm and cool season species in the 3 state area. Emphasis of the PMC selection program is placed on erosion control, improving forage quantity and quality, identifying adapted, winter hardy seed sources capable of maintaining high stand density, and increasing seed production and disease resistance. The PMC also cooperates on projects with research agencies such as ARS who employ plant breeders to improve the quality of forages available in the Northern Plains. In addition, evaluations are conducted off center by the PMC in cooperation with state and federal land management agencies.

Field Evaluation Plantings (multi-species): The objective is to determine the adaptation and performance of selected species and varieties of warm season native grasses to be evaluated under uniform culture and management.

Project 38A327J USDI-FWS, Fergus Falls, Minnesota. Thirty-three accessions of warm season species, established in June 1982. The planting plan is a randomized complete block with 3 replications, and an array for demonstrational purposes. Stands-excellent. Data collected included plant density, plant height, weed competition and stand rating. Forage yield was sampled in 1983-1986. Annual production was down in 1985 and 1986, although moisture conditions were good. Soil samples were collected to check fertility levels. Very obvious differences in maturity were noted between the northern and southern sources of each species.

Project 38A328J USDI-FWS, J. Clark Salyer NWR, Upham, North Dakota. Thirty-three accessions of warm season species, established in June 1982. The planting plan is the same as Fergus Falls (see above). Stands-excellent. Data collected included plant density, winter injury, plant height, weed competition and stand rating. Forage yield was sampled in 1983-1986. Forage production has been excellent, especially for the northern cultivars. Winter injury was noted in southern sources of big bluestem, indiangrass, and little bluestem. Southern sources of switchgrass did not seem as affected by winter injury as the other species but delayed maturity was apparent.

Project 38A334J USDI-FWS, Lake Andes, South Dakota. Thirty-two accessions of warm season species, established in June 1983. The planting plan is a randomized complete block with three replications, plus a demonstration array. Stands-good to excellent. During 1983, stand ratings were the only evaluations conducted. Plant density, phenology and forage yield were collected in 1984-1986. Northern sources were generally low in production. Maturity differences were again readily apparent. The plots were burned in 1986. Some of the more southern sources had excellent forage production in 1986. 'Holt', 'Oto', and 'Osage' indiangrass produced 5 ton/acre of oven dry forage. 'Summer' switchgrass was also in that range.

Project 38A337X US Army Corps of Engineers, Ft. Pierre, South Dakota. Thirty-three accessions of warm season species were established May 27-30, 1986. The planting plan is a randomized completed block with three replications, plus a demonstration array. Stand establishment was good-excellent. Data collected in 1986 included stand density, stand rating, plant height, weed competition, and stand emergence. Stand density estimates ranged from 2 to 34 plants/ft. The stands looked good going into winter; however, severe surface cracks on the Promise clay soil may cause some plant loss.

Project 38A336X Sully County, South Dakota. Thirty-two accessions of warm season grasses were established in randomized blocks seeded May 23-24, 1984. First year stands were fair-excellent. Density ratings ranged from 7 to 29 plants/sq. ft. Data collected included density, stand rating, plant height, and weed competition. Annual forage production and phenology were documented in 1985. Moisture conditions were poor in 1985 and forage production was low. Most northern sources were rated poor in performance. Improved moisture conditions in 1986 resulted in excellent production. Some of the switchgrass entries produced more than 4 ton/ac of oven dry forage.

Project 38A335X Minnesota Dept. of Natural Resources, Rochester, Minnesota. Thirty-seven accessions of warm season grass were established in randomized blocks seeded June 4-6, 1985. Eastern gamagrass and caucasian bluestem were also included in the evaluation. Density ratings, plant height and weed contamination were documented August 20-21, 1985. Stands were rated fair to excellent. Weed competition was heavy on some plots. Data collected in 1986 included stand index, height, and weed competition. Density estimates ranged from 2 to 24 plants/ft. Forage production will be sampled in 1987.

Major Assemblies of Native Grasses. Since 1977 the PMC has conducted four large scale assemblies of native grasses with the assistance of SCS field office personnel. These individuals located natural (native) stands then collected and shipped the vegetative subsamples. Nursery maintenance and evaluation work will be or has been performed by PMC personnel for 2 projects (little bluestem and big bluestem), while 2 others (western wheatgrass and blue grama) are handled by ARS plant breeders.

Project 38I338G. Assembly and evaluation of big bluestem, (Andropogon gerardii).

Objective: Assemble, evaluate, develop, and release cooperatively and adapted variety and/or varieties of big bluestem for conservation use in the following MLRA's: 56, 57, 88, 90, 91, 93, 102A, 102B, 103, 104, and 105.

Collection: October 15-18, 1985

Transplant Date: May 27 - June 13, 1986

Status: A total of 326 accessions were collected in Minnesota and eastern South Dakota. Individual plantlets were separated, transplanted into conetainers, and grown in the PMC greenhouse from March to May, 1986. More than 4,000 individual plants were transplanted to an initial evaluation nursery at the ARS Station at Mandan, ND. Survival was excellent. The nursery will be irrigated in 1987 to simulate the higher rainfall conditions where the plants originated. Data collected in 1987 will include survival, vigor, disease, plant size, and leafiness.

Project 38I010H Evaluation of western wheatgrass, Agropyron smithii

Project 38I011H Evaluation of blue grama, Bouteloua gracilis

Cooperators: The USDA, Soil Conservation Service (SCS), Plant Materials Center, Bismarck, ND, in cooperation with USDA-Agricultural Research Service (ARS), Northern Great Plains Research Center, Mandan, ND, and the Office of Surface Mines (OSM). Dr. Reed Barker, Plant Geneticist, is study coordinator.

Assembly: The initial phase involved the assembly and planting of vegetative field collections of western wheatgrass and blue grama from the western and Northern Great Plains Land Resource Areas 53, 54, 58, 60, 61, and 63 in North and South Dakota.

Current status: The assemblies of western wheatgrass and blue grama were completed during 1977. The projects were designed to systematically sample the ecotypic variation that occurs in these two species in western North and South Dakota. A total of 10,350 vegetative samples were collected by the SCS during September 1977. Five samples of each species were collected on 549 sites in South Dakota and on 486 sites in North Dakota.

### Western wheatgrass

Initial evaluation notes were recorded by USDA-ARS on all plants in 1979. One thousand plants of western wheatgrass were selected for further evaluation and were transplanted to an advanced evaluation nursery in 1980. No data was recorded in 1981. In 1982 data collection on the selected plants included length of spread, density of spread and coloration. In 1983 a further 20% selection was made and seed collected from these plants will be planted in the greenhouse and evaluated for seedling vigor. Four hundred superior plants times 5 replications for a 2,000 total of plants were established vegetatively in the spring of 1984. This was the third cycle of recurrent selection used to identify superior plants. In 1985, data was collected from this third generation on the same agronomic traits recorded during earlier generations. Seed from the third cycle selection will be made available for testing in 1987.

Blue grama

Initial evaluations have been made on the assembly in 1981-82 and inflorescences from selected plants were collected for further study of apomixis. ARS personnel are developing a technique to determine degree of apomixis. No further progress has been reported by ARS in 1984. The PMC assisted with maintenance of the nursery in 1984 and 1985. In 1985, an initial selection of superior plants (top 10%) was made by Dr. Reed Barker (USDA-ARS). Vegetative plugs were removed with the assistance of the PMC. ARS personnel transplanted this material into cone-tainers in the greenhouse for outplanting in 1986.

### Selection and Initial Seed Increase

Project 38I016H Initial increase of little bluestem Schizachyrium scoparium.

Cooperators: The USDA, Soil Conservation Service (SCS), Plant Materials Center, Bismarck, ND, in cooperation with the Office of Surface Mining (OSM).

Assembly: The initial phase involved the assembly and processing of vegetative field collections of little bluestem representative of the following Major Land Resource Areas in North Dakota, South Dakota and Minnesota: 53B, 53C, 54, 55A, 55B, 55C, 56, 57, 58C, 58D, 60, 61, 62, 63, 64, 66, 90, 91, 102A, 102B, 103, 104 and 105.

Current Status: Many of you in the field and area offices were involved in the initial assembly of little bluestem in ND, SD, and MN in 1979. The project has progressed well on schedule. More than 7,000 individual plants were evaluated from 1980-83. Superior plants were selected in 1983 and transplanted into isolated crossing blocks in June 1984. Plants were selected based on vigor, leafiness, disease resistance, plant size, and maturity. Because of the ecotypic variation and maturity differences, the selected plants were placed into 4 groups closely associated with the divisions in Major Land Resource Areas. These 4 regions are: 1. eastern North Dakota and north Central South Dakota, (ND-4114, a composite of 58 plants), 2. Western Dakotas (ND-4115, 68 plants), 3. eastern South Dakota and southern Minnesota (ND-4116, 76 plants), and 4. central and northeast Minnesota (ND-4117, 14 plants). Four separate germplasm blocks have been established. In 1985 a 5th group of short, early maturing plants were selected and established in an isolated crossing block. This composite will be tested for use as low maintenance cover in recreational area developments, transportation corridors and critical areas. Also in 1985, with the assistance of Dr. Jim Karns, Research Animal Scientist, USDA-ARS, Mandan, ND, 14 out of the total 68 plants from group 2 were sub-selected on the basis of higher protein content and digestability. These individuals (Group 6) will be increased and established in another crossing block in 1987.

Besides little bluestem, the following grasses were selected in 1984 and are now being increased in small breeder blocks or initial increase fields:

Project 38AllIS - Initial seed increase of ND-3743 switchgrass. Established at the USDA-ARS Station, Mandan in 1982. Tall leafy, accession, maturing earlier than NDG-965-98. Collected by D. Strum, U.S. Fish and Wildlife Service, in 1980. Collected from a field of Nebraska-28 switchgrass.

Project 38All3S - Initial seed increase of ND-2100 European dunegrass. Strongly rhizomatous, vigorous grass with potential for stabilizing sandy soils, blowouts and other critical areas. Breeder block planted in 1984. Field expanded in 1985. Introduced from Europe.

Project 38All8S - Initial seed increase of ND-1105, sand bluestem. Uniform, open, spreading, sand bluestem with potential for native pasture on sandy sites. Pronounced pale blue color with villous (hairy) racemes. Breeder block established at PMC in 1985.

### Final Evaluation and Release Schedule - Grasses:

Accession No.	Species	Projected Year of Release
Forestburg (SD-149) PI-478001	switchgrass Panicum virgatum	1986-87
Bonilla (SD-27) PI-315658	big bluestem Andropogon gerardii	1986-87
Tomahawk (ND-444) PI-478006	indiangrass Sorghastrum nutans	1987-88
NDG-4 PI-477994	big bluestem Andropogon gerardii	1987-88
NDG-965-98 PI-478002	switchgrass Panicum virgatum	1987-88
ND-95 PI-477995	prairie sandreed Calimovilfa longifolia	1992 <b>-</b> 93 <u>a</u>

### FORB IMPROVEMENT

Forbs are an integral part of the native plant community in the Northern Great Plains. Identified seed sources or cultivars are needed for the revegetation of surface mined lands, wildlife habitat as well as the stabilization and beautification of disturbed areas, recreational developments and transportation corridors. Native forb and legumes from the Dakotas and Minnesota were assembled and evaluated from 1977 through 1983. Selected plants have since been transplanted or grown from seed in order to establish initial seed increase fields.

### Selection and Initial Seed Increase

Project 38A109S - Initial seed increase of ND-3959 Maximilian sunflower.

- Project 38AllOS Initial seed increase of ND-3651 Maximilian sunflower. Selections were made in 1983 from an original assembly of 52 sources. Two accessions of Maximilian sunflower were established in separate fields at the PMC in 1983 and expanded in 1984. ND-3959 is a composite of 5 plants that mature earlier than ND-3651. This perennial warm season forb is best suited to moist sites and deeper soils. Maximilian sunflower is highly palatable and of good forage quality. The seeds are heavily utilized by song birds and other wildlife.
- Project 38A123S Initial seed increase of 47233T stiff sunflower. A composite of several accessions from North and South Dakota. This perennial warm season forb is adapted to dry, shallow soils and is highly palatable. One row was vegetatively established in 1986 for seed increase.
- Project 38Al19S Initial seed increase of ND-1481 purple prairie clover. Originated from Lyman County, South Dakota. This perennial legume provides high quality forage as part of a range seeding mixture. Vegetative transplanting for seed increases will be done in 1987.

### "ULTURAL EVALUATIONS/SPECIAL PROJECTS

Evaluation of cultural production and establishment techniques are necessary for those species and cultivars where knowledge of effective propagation and increase methods are lacking. Demonstration plantings can serve this purpose, while simultaneouly fulfilling an integeral part of the information program. Informal trials or special studies on grass seeding techniques, grafting or rooting, seed stratification, and equipment application or modification are typical endeavors.

Project 38A409K - Evaluation and treatment of dormancy in bareroot seedlings of hackberry. Bareroot seedlings propagated by standard nursery practices have exhibited a high or highly variable degree of dormancy once outplanted. This apparent dormancy prevents seedlings from breaking bud in the normal (natural) amount of time, thereby increasing plant stress and reducing winter survival. To address this problem, the PMC is cooperating with Dr. Rich Cunningham (ARS-Mandan) on an experiment to compare various lifting, storage and conditioning treatments. Time of lifting (spring vs. fall) type of storage ("heel-in" bed vs. cooler), and sweating process (peat vs. shingletoe at 2 different temperatures) will be examined.

Current Status: In 1986 there was very little difference among the various treatments, they all appeared to break dormancy well. Data is not complete at this time. The experiment will be repeated in 1987 with some modifications in treatments.

### GRASS SEED PRODUCTION

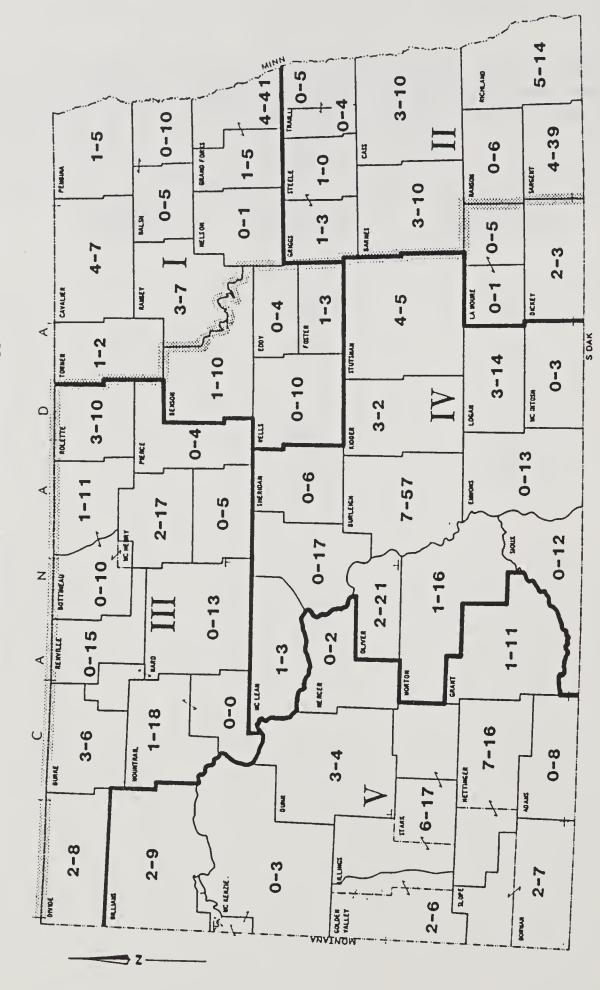
It is a primary objective and responsibility of the Plant Materials Center to grow and maintain a supply of foundation or foundation quality grass seed for officially and informally released varieties. This seed is made available to commercial seed producers for establishment of certified seed increase fields. In several cases, breeder seed must also be produced in carefully maintained and isolated breeder blocks. Additional seed increase fields of selected materials are established and maintained in order to provide a seed supply for comparative variety trails, demonstration plantings, other PMC's, research agencies and SCS District Cooperators who establish field plantings.

Plant Materials Distributed in North Dakota for Field Plantings in 1986.

A total of 465 PLS pounds of grass and forb seed, 2231 seedlings were used to make 18 new field plantings. 356 PLS pounds of grass seed and 5 pounds of tree seed were provided to nurserymen and seed growers for commercial seed increase.

Area	Grass Seed (PLS pounds)	Seedlings	Tree Seed (pounds)
I	1	5	
2	376	260	
3	16	840	2
4		931	3
5	72	195	
Total	465	2231	5

### Plant Materials Field Plantings in North Dakota



Total Field Plantings 1986 Active - 92 Inactive - 584 (first number - active plantings) (second number - inactive plantings)

Field plantings established in North Dakota in 1986.

711			995		502				
Admin	506 MLRA	710 County	Field	503 Cooperator	Field $1/$ Planting No	011 Cultivar	001 PI No.	012 Name	512 Purpose 2/
01	55A 55A	Ramsey	Devils Lake Devils Lake	ND SHD Lake Region Community College	ND86009 ND86018	ND-3959 ND-3959	35964T 35964T	maximilian sunflower maximilian sunflower	CARD
02	55B 56	Barnes	Valley City W. Fargo	T. Odegaard R. Wolfer	ND86004 ND86006	SD-131 SD-149	6073T 478001	mayday switchgrass	WIND
70	55B	Dickey	Uakes		ND00013	cardan	077604	green asn	SULN
02	050	Kichland Richland	wanperon Wahpeton	F. Schumacher	ND86001	rierre NDG-4	477994	sideoars grama big bluestem	SDIN
02	056 53B	Richland Burke	Wahpeton Bowbells	F. Schumacher R. Corey	ND86001 ND86011	MDN-759 Oahe	116252 476982	pubescent wheatgrass hackberry	SDIN
03	53A	Divide	Crosby	B. Olson	ND86003	Cardan	469226	green ash	SDIN
03	55	Rolette	Rolette	•	ND86005	SD-131	6073T	mayday	WLDF
03	55A 057	Ward	Minot I inton	D. Clark N Reitelenscher	ND86010 ND86012	Cardan	469226	green ash	SDIN
04	054	Emmons	Linton		ND86016	Oahe	476982	(spring lifted) hackberry	20 - QNIM
								(fall lifted)	
92	054	Dunn	Killdeer	A. Skachenko	ND86014	Oahe	476982	hackberry (fall lifted)	WIND
05	054	Dunn	Killdeer	A. Skachenko	ND86015	Oahe	476982	hackberry (spring lifted)	WIND
05	054	Dunn Dunn	Killdeer Killdeer	G. Kulish J. Werre	ND86017 ND86002	Oahe SD-131	476982 6073T	hackberry mayday	WIND
1 / F	First two	nimbers of	the field plant	numbers of the field planting number indicate the wear of establishment	to the wear	of actablichm	1		

First two numbers of the field planting number indicate the year of establishment. 1

### Purpose 2/

SDIN - Seed increase WLDF - Wildlife

PAST - Pasture WIND - Windbreak

RNGE - Range SPEC - Special

		2/															-	21		-													,		1		
	512	Purpose	SDIN	SPEC	WIND	MIND	SDIN	SDIN	SDIN	WLDF	MIND	MIND	MIND	SDIN	SDIN	SDIN	NIGS	MIND	MIND	MIND	SDIN		WLDF	MIND	WLDF		MIND	MIND	MIND	MIND	MIND	WIND	MIND	MIND	MIND	RNGE	MIND
	012	Name green ash	green ash	honeylocust	honeylocust	green ash	big bluestem	green ash	beardless wildrye	indiangrass	honeylocust	honeylocust	honeylocust	indiangrass	green ash	green ash	green ash	hackberry	amur maple	hackberry	green ash		honeylocust	amur maple	maximilian sunflower		amur maple	hackberry	honeylocust	honeylocust	honeylocust	honeylocust	honeylocust	amur maple	honeylocust	prairie sandreed	hackberry
	001	PI No. 469226	469226	11850T	11850T	469226	477994	469226	434040	479006	11850T	11850T	11850T	4790061	469226	469226	469226	476982	477992	476982	469226		11850T	477992	35964T		477992	476982	11850T	11850T	11850T	11850T	11850T	477992	11850T	199	476982
	011	Cultivar	Cardan	ND-1879	ND-1879	Cardan	NDG-4	Cardan	'Shoshone'	ND-444	ND-1879	ND-1829	ND-1879	ND-444	Cardan	Cardan	Cardan	Oahe	ND-629	Oahe	Cardan		ND-1879	ND-629	ND-3959		ND-629	Oahe	ND-1879	ND-1879	ND-1879	ND-1879	ND-1879	ND-629	ND-1879	ND-95	Oahe
	Field 1/	Planting No	ND83004	ND85005	ND85031	ND84008	ND85004	ND83007	ND85006	ND85009	ND85013	ND85028	ND85029	ND85001	ND84010	ND84011	ND84012	ND85026	ND85024	ND85027	ND84014		ND85023	ND85002	ND85034		ND85015	ND85017	ND85021	ND85022	ND85007	ND85016	ND85011	ND85019	ND85020	ND85030	ND85014
	503	Cooperator Brown, D.		Myron, R.		Green, M.	Lincoln-Oakes	Wold, J.	Schumacher, F.	Fleischaur, K.	Hogness, T.	Carpenter, K.	Brash, L.	USDI-FWS		Dihlse, D.	Larsen, M.	Brooke, J.	Hagen, C.	Rosecrans, A.	Lincoln-Oakes	Nursery	NDG&F	Silbernagel, J.	NDG&F Dept.	(Custer Mine)	Heinke, H.	Gullickson, L.	Scott, K.	Hochhalter, N.	Fischer, F.	No11, J.	Nielson, S.	Gussey, G.	Gullickson, P.	Goetz, G.	Jorgenson, E.
995	Field	Office Langdon	Langdon	Grand Forks	Grand Forks	Cavalier	Oakes	Cooperstown	Wahpeton	Wahpeton	Forman	Forman	Forman	Bottineau	Bowbells	Bowbells	Bowbells	Crosby	Rolette	Rolette	Bismarck		Bismarck	Napoleon	Garrison		Center	Center	Jamestown	Jamestown	Bowman	Beach	New England	New England	New England	Dickinson	Williston
	710	County	Cavalier	Grand Forks	Grand Forks	Pembina	Dickey	Griggs	Richland	Richland	Sargent	Sargent	Sargent	Bottineau	Burke	Burke	Burke	Divide	Rolette	Rolette	Burleigh		Burleigh	Logan	McLean		Oliver	Oliver	Stutsman	Stutsman	Bowman	G. Valley	Hettinger	Hettinger	Hettinger	Stark	Williams
	909	MLRA 55A	55A	99	99	99	55B	55B	99	99	55B	55B	55B	55A		53B	53B	53A	55A	55A			53B	53B			54	54	55B	55B	54	54	54	54	54	54	53A
711	Admin	Area	01	01	01	01	02	02	02	02	02	02	02	03	03	03	03	03	03	03	04		04	04	04		04	04	04	04	05	05	05	05	0.5	0.5	05

 $\frac{1}{2}$  First two numbers of the field planting number indicate the year of establishment.  $\frac{2}{2}$  Purpose - SDIN - Seed increase PAST - Pasture RNGE - Range RNGE - Range SPEC - Special PAST - Pasture WIND - Windbreak Purpose - SDIN - Seed increase WLDF - Wildlife

Field plantings placed in inactive status in North Dakota as of December 31, 1986.

se 2/												-	22	-							
512 Purpose	SDIN	SDIN	SDIN	SDIN	SDIN	SDIN	PAST	SDIN	SDIN	SDIN	SDIN	MIND	WIND	WIND	MIND	MIND	MIND	WIND	RNGE	SDIN	SDIN
012 Name	green ash big bluestem	switchgrass	harbin pear	green needlegrass	green ash	J. tree lilac	switchgrass	harbin pear	harbin pear	indiangrass	green ash	green ash	green ash	green ash	green ash	green ash	green ash	green ash	prairie sandreed	pubescent wheatgrass	green ash
001 PI No.	469226	19600T	478004	478007	11849T 78004	478008	478001	478004	478004	478006	469226	479226	11849T	469226	11849T	1849	469226	11849T	66	116232	469226
011 Cultivar	Cardan NDG-4	ND-3743	ND-14	SD-93	ND-3207	ND-686	SD-149	ND-14	ND-14	ND-444	Cardan	Cardan	ND-3207	Cardan	ND-3207	ND-3207	Cardan	ND-3207	ND-95	MDN-759	Cardan
502 Field 1/ Planting No	ND82001 ND84001	ND84003	ND82004	ND84002	ND82006	ND82006	ND84004	ND82008	ND82009	ND84007	ND82010	ND82013	ND82013	ND82014	ND82014	ND82015	ND82015	ND82016	ND84005	ND84006	ND82017
503 Cooperator	Woyan, E. USDI-FWS	USDI-FWS	Hendricks, M	USDI-FWS	Froedtert Walting Co	Malting Co.	Wentworth, J.	Erberle, R.	Volk, B	USDI-FWS	Krinke, N.	Gion, D.	Gion, D.	Fieldler, J.	Fieldler, J.	Steiner, A.	Steiner, A.	Dilse, F.	Goetz, G.	Bobb, M	Marmon, V.
995 Field Office	Leeds Devils Lake	Devils Lake	Valley City	West Fargo	Wahpeton	Wahpeton	Forman	Napoleon	Napoleon	Jamestown	Bowman	Mott	Mott	Mott	Mott	Mott	Mott	New England	Dickinson	Dickinson	Williston
710 County	Benson Ramsey	Ramsey	Barnes	Cass	Richland	Richland	Sargent	Logan	Logan	Stutsman	Bowman	Hettinger	Hettinger	Hettinger	Hettinger	Hettinger	Hettinger	Hettinger	Stark	Stark	Williams
506 MLRA	55A 55A	55A 55R	55B	56	56	56	55B	53B	53B	55B	54	54	54	54	54	54	54	54	54	54	53A
711 Admin Area	01	01	02	02	02	02	02	04	04	04	05	05	0.5	0.5	0.5	0.5	05	05	05	05	05

First two numbers of the field planting number indicate the year of establishment. 1/

### Purpose 2/

SDIN - Seed increase WLDF - Wildlife

PAST - Pasture

WIND - Windbreak

RNGE - Range SPEC - Special

Field plantings terminated in North Dakota as of December 31, 1986.

512 Purpose	SDIN	WLDF	WLDF	WLDF	SDIN	WIND	WIND	MIND	WIND
012 Name	green ash hackberry	hackberry	honeylocust	amur maple	sideoats grama	hackberry	hackberry	honeylocust	honeylocust
001 PI No.	469226 476982	476982	11850T	477992	476981	476982	476982	11850T	11850T
011 Cultivar	Cardan'Oahe'	Oahe	ND-1879	ND-629	Killdeer	Oahe	Oahe	ND-1879	ND-1879
502 Field 1/ Planting No	ND83005 ND85003	ND85008	ND85008	ND85008	ND85032	ND85025	ND85010	ND85012	ND85018
503 Cooperator	Lorenz, G. March, W	Fleischaur, K.	Fleischaur, K.	Fleischaur, K.		Hagen, C.	Killdeer Pk Bd	Ehrmantraut, A.	Zook, R.
995 Field Office	Langdon Carrington	Wahpeton	Wahpeton	Wahpeton	Wahpeton	Rolette	Killdeer	Carson	Beach
710 County	Cavalier Foster	Richland	Richland	Richland	Richland	Rolette	Dunn	Grant	G. Valley
506 MLRA	55A 55B	56	99	99	99	55A	54	54	54
711 Admin Area	01	02	02	02	02	03	05	05	05

2/

First two numbers of the field planting number indicate the year of establishment. 1-

### Purpose 2/

SDIN - Seed increase

WLDF - Wildlife

WIND - Windbreak PAST - Pasture

RNGE - Range SPEC - Special

DAKOTA	
NORIH	8 /
Z	/198
PLANTINGS	10/27/
FIELD	
HERAACEOUS	
0 F	
SJYMARY	

EXT AREA NUM COOPLRAIDR  NUMBER SY1931 PLVIT NO FJRP RC ACRE  17 ND HIGHMAY DEPT-1-29 477994 ANGE ND69004 CARD 815  17 ND HIGHMAY DEPT-1-29 477994 ANGE ND69004 CARD 815  17 USDI-FWS.VALLEY CITY 477994 ANGE ND81003 8110.0  17 USDI-FWS.VALLEY CITY 477994 ANGE ND81003 8110.0  17 USDI-FWS.VALLEY CITY 477994 ANGE ND81003 8110.0  17 LAKE ALICE NAR 478002 PAVIZ ND78001 878 4.0  17 LAKE ALICE NAR 477894 ANGE ND81999 LDF 882 4.0  18 FT RANSOM ST PK 477994 ANGE ND81999 LDF 882 4.0  19 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 4.0  19 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  10 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  11 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  12 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  13 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  14 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  15 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  16 FT RANSOM ST PK 477994 ANGE ND81999 LDF 883 6.0  17 LAKE ALLCE NAR 478002 PAVIZ ND82008 SDIN 885 6.0  18 FT RANSOM ST PK 4778002 PAVIZ ND83006 SDIN 885 6.0  19 FT LORENZ ALICE NAR ALICE 478002 PAVIZ ND83001 LDF 885 6.0  10 FT LORENZ ALICE NAR 478002 PAVIZ ND83001 LDF 885 6.0  11 FT LAKE ALICE NAR 478002 PAVIZ ND83001 LDF 885 8.0  12 FT RANSOM ST PK 478002 PAVIZ ND83001 LDF 885 8.0  13 FT RANSOM ST PK 478002 PAVIZ ND83001 LDF 885 8.0  14 FEGEN ARBEIGE NAR 478002 PAVIZ ND83001 LDF 885 8.0  15 FT RANSOM ST PK 478002 PAVIZ ND83001 LDF 885 8.0  15 FT RANSOM ST PK 478002 PAVIZ ND83001 LDF 885 8.0  16 FT RANSOM ST PK 478002 PAVIZ ND83001 LDF 885 8.0  17 LAKE ALICE NAR 478002 PAVIZ ND83001 LDF 885 8.0  18 BLGGEN AT 8866 ND83001 LDF 885 8.0  18 FLGGEN AT 8866	è	900 7	769	SOIL A	11 505 JM CNT	503		2 A N T	non	517	01 5 R A		830 STD	833 8	21 91	0 7.1	m
17 NO 41GHWAY DEPT.1-23			OIL SERIF	ارا ×	REA NU	COOPERATOR	UMBER S	1684	7 17 7	JRP	ν (C. Σ	RE RA		917	JC AD	PT ST	T A
17 NO   16 HORMAY DEPT-1-29   477994 ANGE   NOB1003   885 10.0						NO HIGHWAY DEPT.1-2	7 7394 A	<u>ئ</u>	00690	ARD	œ			-	ю	3 1	
6         WYARD-HAMERLY         1         17051-FMS,VALLEY CITY         477994         ANGE         N081003         *81         10.0           6         WYARD-HAMERLY         1         1         USDI-FMS,VALLEY CITY         477994         ANGE         N081003         *81         10.0           6         WYARD-HAMERLY         1         1         USDI-FMS,VALLEY CITY         477994         ANGE         N081003         *84         10.0           5A         WALLERS-HAMERLY         1         7         1         LAKE ALICE NAR         478002         PANIZ         V078001         *82         10.0           5A         VALLERS-HAMERLY         1         7         1         LAKE ALICE NAR         478002         PANIZ         N078001         *82         4.0           5A         VALLERS-HAMERLY         1         7         1         LAKE ALICE NAR         478002         PANIZ         N078001         *82         4.0           5B         FORDVILLE         1         7         FT RANSOM         ST         A77994         ANGE         N081099         LDF *82         4.0           5A         SVEA-HAMERLY         1         1         7         FT RANSOM         ST         477809						ND HIGHWAY DEPT.1-2	77999 A	GE GE	00690	ARD	85		2	-	-	1 I	
WARAD-HAMERLY   17 USDI-FUS-VALLEY CITY   477994 ANGE   NOBB1003	0.5	2	YARD-HAMERL	١		USDI-FWS.VALLEY CIT	7 46677	GE	08100	•	81	10	1 0		6	Н	
6         WARD-HAMERLY         17 USDI-FUS-VALLEY CITY         477994         ANGE         NBB1003         *83 10.0           6         WARD-HAMERLY         17 USDI-FUS-VALLEY CITY         477994         ANGE         NDB1003         *84 10.0           5         VALLERS-HAMERLY         17 LAKE ALICE NAR         478002         PAVIZ         NO78001         *84 10.0           55         VALLERS-HAMERLY         17 LAKE ALICE NAR         477994         ANGE         NDB1099         ALDF *81           55         FORDVILLE         1         75 FT RANSOM ST PK         477994         ANGE         NDB1999         ALDF *82           55         FORDVILLE         1         75 FT RANSOM ST PK         477994         ANGE         NDB1999         ALDF *81           56         FORDVILLE         1         75 FT RANSOM ST PK         477994         ANGE         NDB1999         ALDF *81           56         FORDVILLE         1         75 FT RANSOM ST PK         477994         ANGE         NDB1999         ALDF *81           56         FORDVILLE         1         75 FT RANSOM ST PK         477904         ANGE         NDB1999         ALDF *81           56         S VALA         1         778002         PAVIZ         NDB	0.5	9	YARD-HAMERL			USDI-FWS,VALLEY CIT	77994 A	GE	08100	•	82	10		ũ	6		
6         WTARD-HAMERLY         17 USDI-FWS VALEEY CITY         4777994         ANGE         ND11003         ***84 10.0           5A VALLERS-HAMERLY         17 LAKE ALICE NWR         478002         PAVI2         NO78001         ***87 4.0           5A VALLERS-HAMERLY         17 LAKE ALICE NWR         478002         PAVI2         NO78001         ***87 4.0           5B VALLERS-HAMERLY         17 LAKE ALICE NWR         477994         ANGE         NO81999         **LDF **81           5B FORDVILLE         1.         7.5 FT RANSOM ST PK         477994         ANGE         NO81999         **LDF **82           5B FORDVILLE         1.         7.5 FT RANSOM ST PK         477994         ANGE         NO81999         **LDF **82           5B FORDVILLE         1.         7.5 FT RANSOM ST PK         477994         ANGE         NO81999         **LDF **82           5B FORDVILLE         1.         7.5 FT RANSOM ST PK         477994         ANGE         NO81999         **LDF **82           5A SVEA-HAMERLY         1.         7.0 FT RANSOM ST PK         477994         ANGE         NO82002         SD1N **82         SD1N **82           5A SVEA-HAMERLY         1.         1.         1.         1.         1.         1.         1.         1. <td< td=""><td>0.5</td><td>9</td><td>YARD-HAMERL</td><td>٦</td><td></td><td>USDI-FWS.VALLEY SIT</td><td>7 7994 A</td><td>GE</td><td>08100</td><td>•</td><td>83</td><td>10</td><td></td><td>1</td><td>23</td><td></td><td></td></td<>	0.5	9	YARD-HAMERL	٦		USDI-FWS.VALLEY SIT	7 7994 A	GE	08100	•	83	10		1	23		
SA VALLERS-HAMERLY         1 LAKE ALICE N#R         478002 PAVI2         NO78001         *78         4.0           5A VALLERS-HAMERLY         1 1 LAKE ALICE N#R         478002 PAVI2         NO78001         *82         4.0           5A VALLERS-HAMERLY         1 1 LAKE ALICE N#R         478002 PAVI2         NO78001         *84         4.0           5B FORDVILLE         1 73 FT RANSOM ST PK         477994 ANGE         NO81999 ULDF         *81         4.0           5B FORDVILLE         1 73 FT RANSOM ST PK         477994 ANGE         NO81999 ULDF         *82         4.0           5B FORDVILLE         1 73 FT RANSOM ST PK         477994 ANGE         NO81999 ULDF         *83         5.0           5A SVEA-HAWERLY         1 73 FT RANSOM ST PK         477994 ANGE         NO81999 ULDF         *83         5.0           5A SVEA-HAWERLY         1 1 5 FT RANSOM ST PK         477994 ANGE         NO82008         \$510 N *85         5.0           5A SVEA-HAWERLY         1 1 1 1 1 LORENS         1 1 1 1 1 LORENS         4778002 PAVI2         NO82008         \$510 N *85         5.0           5A SVEA         1 1 1 1 LORENS         1 1 1 LORENS         1 1 1 LORENS         4778002 PAVI2         NO83001         *10F *85         6.0           5A SVEA         1 1 1 1 LORENS	0.5	9	YARD-HAMERL	١		USDI-FWS.VALLEY CIT	7 7994 A	GE	08100	•	84	10		-	-	3 1	
SA VALERS-HAMBRLY         1 LAKE ALICE N#R         478002 PAVI2         ND78001         *82         4*0           5B VALLERS-HAMBRLY         1 LAKE ALICE N#R         477994 ANGE         ND81999 ALDF *81         *84         4*0           5B FORDVILLE         1 75 FT RANSOM ST PK         477994 ANGE         ND81999 ALDF *82         *84         4*0           5B FORDVILLE         L         73 FT RANSOM ST PK         477994 ANGE         ND81999 ALDF *83         *85           5B FORDVILLE         L         73 FT RANSOM ST PK         477994 ANGE         ND81999 ALDF *83         *85           5B FORDVILLE         L         73 FT RANSOM ST PK         477994 ANGE         ND81999 ALDF *83         *83           5A SVEA-HAMERLY         L         1 5 M ROHRER         4778002 PAVI2         ND82008         \$51N *85         \$9.0           5A SVEA-HAMERLY         L         1 5 M ROHRER         4778002 PAVI2         ND82008         \$51N *85         \$9.0           5A SVEA         L         1 1 7 LORENZ         4778002 PAVI2         ND82008         \$51N *85         \$9.0           5A SVEA         L         1 1 1 LORENZ         4778002 PAVI2         ND82008         \$51N *85         \$9.0           5A SVEA         L         1 1 1 LORENZ         4778002 PA	0.5	S	VALLERS-HAMERL	1		LAKE ALICE NA	78002 P	VI2	07800	•	78	10		~	3		
SA VALLERS - HAMFERLY         L         71 LAKE ALICE NUR         477994 ANGE         NOB1999 ALDF         ************************************	0.5	2	VALLERS-HAMERL	_		LAKE ALICE NA	78002 P	V I 2	07800	•	82			1	-	3	
5B FORDVILLE         1         75 FT RANSOM ST PK         477994 ANGE         NOB1999 JLDF *82           5B FORDVILLE         1         75 FT RANSOM ST PK         477994 ANGE         NOB1999 JLDF *82           5B FORDVILLE         1         75 FT RANSOM ST PK         477994 ANGE         NOB1999 JLDF *84           5B FORDVILLE         1         75 FT RANSOM ST PK         477994 ANGE         NOB1999 JLDF *84           5B FORDVILLE         1         75 FT RANSOM ST PK         477994 ANGE         NOB1999 JLDF *84           5B SVEA-HAMERLY         1         1         71 RANSOM ST PK         477894 ANGE         NOB1999 JLDF *84           5A SVEA-HAMERLY         1         1         1         1         1         1           5A SVEA-HAMERLY         1         1         1         1         1         1           5A SVEA         1         1         1         1         1         1         1           5A SVEA         1	С	5	VALLERS-HAMERL	٦		LAKE ALICE NW	78902 P	V I 2	07800	•	84	10		~	1	3	
5B FORDVILLE         1         7.5 FT RANSOM ST PK         477994 ANGE         NOB1999 MLDF *882           5B FORDVILLE         L         7.5 FT RANSOM ST PK         477994 ANGE         NOB1999 MLDF *883           5B FORDVILLE         L         7.5 FT RANSOM ST PK         477994 ANGE         NOB1999 MLDF *883           5B FORDVILLE         L         7.5 FT RANSOM ST PK         477994 ANGE         NOB1999 MLDF *883           5A SVEA HAWERLY         L         1         5 M ROHRER         477802 PAVIC         NOB2008 SD1N *885           5A SVEA HAWERLY         L         1         5 M ROHRER         478002 PAVIC         NOB2008 SD1N *885           5A SVEA         L         1         9 M ROHRER         478002 PAVIC         NOB2008 SD1N *885           5A SVEA         L         1         9 M ROHRER         478002 PAVIC         NOB2008 SD1N *885           5A SVEA         L         1         9 M ROHRER         478002 PAVIC         NOB2008 SD1N *885           5A SVEA         L         1         1         1         1         1           5C HEGNE         L         1         1         1         1         1           5C HEGNE         SIC         1         1         1         1         1         <	0	2	FORDVILLE	_		FT RANSOM ST P	7 7994 A	9E	08199	LDF	81	10			-	Н	
5B FORDVILLE         L         73 FT RANSOM ST PK         477994 ANGE         NOB1999 "LDF "84           5B FORDVILLE         L         73 FT RANSOM ST PK         477994 ANGE         NOB1999 "LDF "89           5B FORDVILLE         L         73 FT RANSOM ST PK         477894 ANGE         NOB1999 "LDF" 88           5A SVEA-HAMERLY         L         1         5 M ROHRER         4778002 PAV12         NOB2002 SD1N *85           5A SVEA-HAMERLY         L         1         5 M ROHRER         478002 PAV12         NOB2008 SD1N *85           5A SVEA-HAMERLY         L         1         19 T LORENZ         478002 PAV12         NOB3006 SD1N *85           5A SVEA         L         1         19 T LORENZ         478002 PAV12         NOB3006 SD1N *85           5A SVEA         L         1         19 T LORENZ         478002 PAV12         NOB3006 SD1N *85           5A SVEA         L         1         19 T LORENZ         478001 PAV12         NOB3006 SD1N *85           5A SVEA         L         1         10 SD1N-FUS-LAKE ALICE         478001 PAV12         NOB3001 WLDF *85           5A VALLERS-HAMERLY         L         1 71 LAKE ALICE NJR         478002 PAV12         NOB3001 WLDF *85           5A HAMERLY-SVEA         L         1 71 RKE GEN         478002	0	2	FORDVILL	_		FT RANSOM ST P	77994 A	ĢĒ	08199	LDF	82	10		6		_	
5B FORDVILLE         13 FT RANSON ST PK         477994 ANGE         NDB1999 ALDF         884           5B FORZVILLE         L         13 FT RANSON ST PK         477994 ANGE         NDB1999 ALDF         885           5A SVEA-HAYERY         L         1         5 M ROHRER         478002 PAVI2         NDB2002         501N         885           5A SVEA-HAYERY         L         1         5 M ROHRER         478002 PAVI2         NDB2008         501N         885         6.0           5A SVEA-HAYERY         L         1         1 D T LORENZ         478002 PAVI2         NDB2008         501N         885         6.0           5A SVEA         L         1         1 D T LORENZ         478002 PAVI2         NDB2006         501N         885         6.0           5A SVEA         L         1         1 D T LORENZ         478002 PAVI2         NDB2003         MDF         885         6.0           5A SVEA         L         1         1 D T LORENZ         ATROND         AVID         NDB2002         SDIN         885         6.0           5A SVEA         L         1         1 D T LORENZ         ATROND         AVID         NDB2002         SDIN         885         6.0           5A SVEA         L <td>0</td> <td>10</td> <td>FORDVILL</td> <td>٦</td> <td></td> <td>FT RANSOM ST P</td> <td>7 46677</td> <td>GE.</td> <td>08199</td> <td>LDF</td> <td><math>\infty</math></td> <td>0</td> <td></td> <td>7</td> <td>3</td> <td>-</td> <td></td>	0	10	FORDVILL	٦		FT RANSOM ST P	7 46677	GE.	08199	LDF	$\infty$	0		7	3	-	
56 FORDVILLE         13 FT RANSOM ST PK         477394 ANGE         NOB1999 ALDF         *85           54 SVEA-HAMERLY         L         1         3 H ROHRER         478002 PAVI2         NOB2002 SJIN *85           54 SVEA-HAMERLY         L         1         5 H ROHRER         478002 PAVI2         NOB2002 SJIN *85           55 SVEA-HAMERLY         L         1         19 T LORENZ         478002 PAVI2         NOB2002 SJIN *85           55 SVEA-HAMERLY         L         1         19 T LORENZ         478002 PAVI2         NOB3006 SJIN *85         6.0           55 SVEA-HAMERLY-SVEA         L         1         19 T LORENZ         478002 PAVI2         NOB3006 SJIN *85         6.0           50 HAMERLY-SVEA         L         1         1 J SOII*FWS*LAKE ALICE         478002 PAVI2         NOB0001         4.0           50 HAMERLY-SVEA         L         1         7 LAKE ALICE N#R         478002 PAVI2         NOB0001         4.0           50 HAMERLY-SVEA         L         1         7 LAKE ALICE N#R         478002 PAVI2         NOB0001         4.0           54 HAMERLY-SVEA         L         1         7 LAKE ALICE N#R         478002 PAVI2         NOB1006         5.0           55 VAALERS HAMERLY         L         1         1 <t< td=""><td>0</td><td>2</td><td>FORDVILL</td><td>٦</td><td></td><td>FT RANSOM ST P</td><td>77994 A</td><td>GE.</td><td>08199</td><td>LDF</td><td>8</td><td>0</td><td></td><td>6</td><td>24</td><td>3 1</td><td></td></t<>	0	2	FORDVILL	٦		FT RANSOM ST P	77994 A	GE.	08199	LDF	8	0		6	24	3 1	
5A         SVEA-HAMERLY         L         1         3         M ROHRER         478002         PAVIZ         V082002         SDIN         *85           5A         SVEA-HAMERLY         L         1         5         M ROHRER         478002         PAVIZ         N082008         SDIN         *85         9.0           5A         SVEA-HAMERLY         L         1         1         9         T LORENZ         478002         PAVIZ         N083006         SDIN         *85         6.0           5A         SVEA         L         1 <t< td=""><td>O</td><td>S</td><td>FORDVILL</td><td>Ļ</td><td></td><td>FT RANSOM ST P</td><td>A 46617</td><td>GE</td><td>08199</td><td>LDF</td><td>8</td><td>0</td><td></td><td>m</td><td>€0</td><td>3 1</td><td></td></t<>	O	S	FORDVILL	Ļ		FT RANSOM ST P	A 46617	GE	08199	LDF	8	0		m	€0	3 1	
5A         SVEA-HAMERLY         L         1         5         M ROHRER         478002         PAVI2         ND82008         50IN         89         9           5A         SVEA-HAMERLY         L         1         5         M ROHRER         478002         PAVI2         ND82008         50IN         89         5           5A         SVEA         L         1         19         T LORENZ         478002         PAVI2         ND83006         50IN         89         5         6           5A         SVEA         L         1         19         T LORENZ         478002         PAVI2         ND83006         30IN         89         6         6         89         6         89         6         89         6         89         6         89         6         89         6         89         6         89         6         89         6         89         6         89         80	0	2	SVEA-HAMERL	_	1 2	M ROHRER	78002 P	V I 2	08200	NIG	8		9 9	₩	3	3 1	
5A         SVEA-HAMERLY         I         5 M RDHRER         478002         PAVIZ         ND82008         SDIN         *84         9.           5A         SVEA         L         19         T LORENZ         478002         PAVIZ         ND83006         *85         6-           5A         SVEA         L         19         T LORENZ         478002         PAVIZ         ND83006         SDIN         *85         6-           5A         SVEA         L         1         19         T LORENZ         478002         PAVIZ         ND83006         SDIN         *85         6-           5C         HAMERLY-SVEA         L         1         71         USDI-FWS-LAKE         ALICE         478002         PAVIZ         ND80001         MLDF         *85           5A         HEGNE         SIC         1         71         LAKE ALICE         MR         478002         PAVIZ         ND80001         MLDF         *85         8-           5A         HAMERLY-SVEA         L         1         71         LAKE ALICE         MWR         478002         PAVIZ         ND81006         *82         8-           5A         HAMERLY-SVEA         L         1         71	<b>E</b>	5	SVEA-HA4ERL	١	1	M ROHRE	78902 P	V I 2	08200	NIC	82	.0 3		'n	6	3 1	
5A         SVEA         L         1         19         T LORENZ         478102         PAVI2         NDB3006         *85         6.           5A         SVEA         L         1         19         T LORENZ         478002         PAVI2         NDB3006         *85         6.           5A         SVEA         L         1         19         T LORENZ         478002         PAVI2         NDB3006         *85         6.           5C         HAMERLY-SVEA         L         1         71         USD11*FWS,LAKE ALICE         478002         PAVI2         NDB3003         MLDF         *85           5C         HEGNE         SIC         1         71         USD11*FWS,LAKE ALICE         478002         PAVI2         NDB3003         MLDF         *85           5A         HEGNE         SIC         1         71         LAKE ALICE NWR         478002         PAVI2         NDB3003         MLDF         *85           5A         HAGNE         SIC         1         71         LAKE ALICE NWR         478002         PAVI2         NDB3003         MLDF         *85           5A         HAGNE         SIC         1         71         LAKE ALICE NWR         478002         <	0	2	SVEA-HAMERL	۲		M ROHRE	78002 P	V I 2	08200	NIO	84	.0 3		-	-	3 1	-
SA         SVEA         L         1         19         T         LORENZ         478002         PAVIZ         ND83006         SDIN         *85         6.           SA         SVEA         L         1         19         T         LORENZ         478002         PAVIZ         ND83006         SDIN         *85         6.           SC         HAMERLY-SVEA         L         1         71         USDI-FUSS-LAKE ALICE         478001         PAVIZ         ND78003         MLDF         *85           SC         HEGNE         1         71         LAKE ALICE NUR         478002         PAVIZ         ND80001         MLDF         *85           SA         HAMERLY-SVEA         L         1         71         LAKE ALICE NUR         478002         PAVIZ         ND80001         MLDF         *85           SA         HAMERLY-SVEA         L         1         71         R BLEGEN         478002         PAVIZ         ND81001         MLDF         *85         10           SA         HAMERLY-SVEA         L         1         71         R BLEGEN         478002         PAVIZ         ND81006         *85         10           SA         HAMERLY-SVEA         L         1 <td>5.5</td> <td>5</td> <td>SVE</td> <td>_</td> <td></td> <td>T LOREN</td> <td>78102 P</td> <td>VI2</td> <td>08300</td> <td></td> <td>83</td> <td>•</td> <td></td> <td>_</td> <td>3</td> <td>3 1</td> <td>2</td>	5.5	5	SVE	_		T LOREN	78102 P	VI2	08300		83	•		_	3	3 1	2
5A         SVEA         L         1         9         1         LORENZ         478002         PAVIZ         NDB3006         SDIN         *85           5C         HAMERLY-SVEA         L         1         71         USDI,FWS,LAKE         ALICE         478001         PAVIZ         NDB3006         SDIN         *85           5A         VALLERS-HAMERLY         L         1         71         USDI,FWS,LAKE         ALICE         478002         PAVIZ         NDB3001         MDF         *85           5A         HEGNE         ARBOO         PAVIZ         NDB30001         MLDF         *85         BC           5A         HAMERLY-SVEA         L         1         71         LAKE         ALICE         A78002         PAVIZ         NDB3001         MLDF         *85           5A         HAMERLY-SVEA         L         1         71         LAKE         ALICE         A78002         PAVIZ         NDB3001         MLDF         *85           5A         HAMERLY-SVEA         L         1         71         R BLGGEN         478002         PAVIZ         NDB3001         MLDF         *85           5A         HAMERLY-SVEA         L         1         71         R BLGG	С	5	SVE			T LOREN	78002 P	V I 2	08300		85	• 0 5	3.4	-	3	1	4
5C HAMERLY-SVEA       L       1       71       USDI-FUS-LAKE ALICE       478001       PAVI2       ND78003       WLDF       *85         5A VALLERS-HAMERLY       L       1       71       USDI-FUS-LAKE ALICE       478002       PAVI2       ND78003       WLDF       *85         5C       HEGNE       1       71       LAKE ALICE NWR       478002       PAVI2       ND80001       *82         5A       HAMERLY-SVEA       L       1       71       LAKE ALICE NWR       478002       PAVI2       ND80001       *82         5A       HAMERLY-SVEA       L       1       71       LAKE ALICE NWR       478002       PAVI2       ND81006       *82       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       478002       PAVI2       ND81006       *82       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       478002       PAVI2       ND81006       *82       8*         5A       VAALERS'HAMERLY       L       1       71       R BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A       VAALERS'HAMERLY       L       1	< -	S	SVEA	_		T LORENZ	78002 P	v I 2	08300	NIO	8		34	-	3	1 1	-
5A         VALLERS-HAMERLY         L         1         71         USDI-FUS-LAKE         ALICE         478002         PAVI2         ND78003         WLDF         *85           5C         HEGNE         SIC         1         71         LAKE         ALICE         NMR         478002         PAVI2         ND80001         *85           5A         HAMERLY-SVEA         L         71         LAKE         ALICE         NMR         478002         PAVI2         ND80001         WLDF         *85           5A         HAMERLY-SVEA         L         1         71         LAKE         ALICE         NMR         478002         PAVI2         ND80001         WLDF         *85         8*           5A         HAMERLY-SVEA         L         1         71         R         BLEGEN         478002         PAVI2         ND81006         ND81006         SDIN         *85         8*           5A         HAMERLY-SVEA         L         1         71         R         BLEGEN         478002         PAVI2         ND81006         SDIN         *85         8*           5A         HAMERLY-SVEA         L         1         71         R         BLEGEN         477994         ANGE	0.0	2	HAMERLY-SVE	_		USDI+FWS+LAKE ALIC	78001 P	VI2	07800	LDF	8			2	3	3 -	
5C       HEGNE       SIC       1       71       USOI+FWS,LAKE       ALICE       N4R       478001       PAVI2       VD80001       WLDF       *85         5A       1       71       LAKE       ALICE       N4R       478002       PAVI2       ND80001       *84       *85         5A       1       71       LAKE       ALICE       N4R       478002       PAVI2       ND80001       *86       85         5C       HEGNE       SIC       1       71       LAKE       ALICE       478002       PAVI2       ND80001       WLDF       *85       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       478002       PAVI2       ND81006       *84       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       478002       PAVI2       ND81006       SDIN       *85       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A       VAALERS, HAMERLY       L       1       71       R BLEGEN       477994       ANGE       ND83001       WLDF <td< td=""><td>(5)</td><td>S</td><td>VALLERS-HAMERL</td><td></td><td></td><td>USDI, FWS, LAKE ALIC</td><td>78002 P</td><td>V I 2</td><td>07800</td><td>LDF</td><td><math>\infty</math></td><td></td><td></td><td>ū</td><td>1</td><td>3 1</td><td></td></td<>	(5)	S	VALLERS-HAMERL			USDI, FWS, LAKE ALIC	78002 P	V I 2	07800	LDF	$\infty$			ū	1	3 1	
5A	= 5	5	HEGVE	$\vdash$		USDI FWS LAKE ALIC	78001 P	VI2	08000	LDF	8			-	3	1 I	
5A         5A         5A         5A         5A         1       71       LAKE ALICE NWR       478002       PAVI2       ND80001       *85         5C       HEGNE       SIC       1       71       USDI+FWS+LAKE ALICE       478002       PAVI2       ND81006       *85       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       478002       PAVI2       ND81006       SDIN       *85       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       478002       PAVI2       ND81006       SDIN       *85       8*         5A       HAMERLY-SVEA       L       1       71       R BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A       VAALERS, HAMERLY       L       1       71       R BLEGEN       477994       ANGE       ND83001       WLDF       *84       10*         5A       VAALERS, HAMERLY       L       1       71       R BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A       VAALERS, HAMERLY       L       1 <td< td=""><td></td><td>5</td><td></td><td></td><td></td><td>LAKE ALICE NA</td><td>78002 P</td><td>V I 2</td><td>08000</td><td></td><td><math>\infty</math></td><td>• ч</td><td>9 0</td><td><b>€</b></td><td>5</td><td>3 1</td><td></td></td<>		5				LAKE ALICE NA	78002 P	V I 2	08000		$\infty$	• ч	9 0	<b>€</b>	5	3 1	
5A       1       71       LAKE ALICE NWR       478002       PAVI2       ND80001       WLDF       *85         5C       HEGNE       SIC       1       71       USDI+FWS+LAKE ALICE       478002       PAVI2       ND81006       *84       8*         5A       HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       *84       8*         5A       HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       SDIN       *85         5A       HAMERLY-SVEA       L       1       71       R       BLEGEN       477994       ANGE       ND81006       SDIN       *85         5A       VAALERS,HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *84       10*         5A       VAALERS,HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A       VAALERS,HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF	ŗ.	2				LAKE ALICE NU	78002 P	V I 2	08000		Œ			ĸ	1	3 1	
5C HEGNE       SIC       1       71 USDI+FWS+LAKE ALICE       478002 PAVI2       ND80001 WLDF       *85         5A HAMERLY-SVEA       L       1       71 R BLEGEN       478002 PAVI2       ND81006       *84       8*         5A HAMERLY-SVEA       L       1       71 R BLEGEN       478002 PAVI2       ND81006       *85       8*         5A HAMERLY-SVEA       L       1       71 R BLEGEN       478002 PAVI2       ND81006       *85       8*         5A HAMERLY-SVEA       L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF       *84       10*         5A VAALERS-HAMERLY       L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF       *85       10* <td>=</td> <td>5</td> <td></td> <td></td> <td></td> <td>LAKE ALICE NU</td> <td>78002 P</td> <td>V I 2</td> <td>00080</td> <td></td> <td>8</td> <td></td> <td></td> <td>7</td> <td>3</td> <td>1 1</td> <td></td>	=	5				LAKE ALICE NU	78002 P	V I 2	00080		8			7	3	1 1	
5A HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       *84       8*         5A HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       *85       8*         5A HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       *85       10*         5A HAMERLY-SVEA       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *84       10*         5A VAALERS-HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS-HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85 <td>C</td> <td>5</td> <td>HEGNE</td> <td><math>\blacksquare</math></td> <td></td> <td>USDI FWS LAKE ALIC</td> <td>78002 P</td> <td>V I 2</td> <td>08000</td> <td>LDF</td> <td>œ</td> <td></td> <td></td> <td>-</td> <td>3</td> <td>1 1</td> <td></td>	C	5	HEGNE	$\blacksquare$		USDI FWS LAKE ALIC	78002 P	V I 2	08000	LDF	œ			-	3	1 1	
5A HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       *84       8*         5A HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       ND81006       *85       8*         5A HAMERLY-SVEA       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS, HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *89       10*         5A VAALERS, HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS, HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS, HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85         5A VAALERS, HAMERLY       L       1       71       USDI-F&WS       477994       ANGE       ND84001       WLDF       *85	0	5	HAMERLY -SVE	٦		R BLEGE	18002 P	۷12	00100		82	9 0.		~	_	3 1	
5A HAMERLY-SVEA       L       1       71       R       BLEGEN       478002       PAVI2       VD81006       *85       8*         5A HAMERLY-SVEA       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS*HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *84       10*         5A VAALERS*HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS*HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*         5A VAALERS*HAMERLY       L       1       71       R       BLEGEN       477994       ANGE       ND83001       WLDF       *85       10*	_	5	HAMERLY-SVE			R BLEGE	78002 P	V12	08100		84	•	0 1	S	-	3 1	
5A HAMERLY-SVEA       L       1 71 R BLEGEN       477994 ANGE       ND83001 WLDF *83 10.         5A VAALERS, HAMERLY, L       1 71 R BLEGEN       477994 ANGE       ND83001 WLDF *84 10.         5A VAALERS HAMERLY       1 71 R BLEGEN       477994 ANGE       ND83001 WLDF *85 10.         5A VAALERS, HAMERLY       1 71 R BLEGEN       477994 ANGE       ND83001 WLDF *85 10.         5A VAALERS, HAMERLY       1 71 R BLEGEN       477994 ANGE       ND83001 WLDF *85 10.         5A VAALERS, HAMERLY       1 71 USDI-F&WS       477994 ANGE       ND84001 WLDF *85	=	5	HAMERLY-SVE	_		R BLEGE	78002 P	VI2	08100	NIO	8			_	1	1 I	
5A VAALERS,HAMERLY, L       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF *83 10.         5A VAALERS,HAMERLY       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF *84 10.         5A VAALERS,HAMLRLY       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF *85 10.         5A VAALERS,HAMLRLY       1       71 R BLEGEN       477994 ANGE       ND83001 WLDF *85 10.         5A HAMERLY-SVEA       LS1C       1       71 USDI-F&WS       477994 ANGE       ND84001 WLDF *85	=	5	HAMERLY-SVE	_		R BLEGE	78002 P	V I 2	08100		85	9 0.	0	-	-	1	
5A VAALERS.HAMERLY.       1       71       R BLEGEN       477994 ANGE       ND83001 WLDF *84 10.         5A VAALERS.HAMLRLY.       1       71       R BLEGEN       477994 ANGE       ND83001 WLDF *85         5A VAALERS.HAMLRLY.       1       71       R BLEGEN       477994 ANGE       ND83001 WLDF *85         5A HAMERLY-SVEA       LS1C       1       71       USDI-F&WS       477994 ANGE       ND84001 WLDF *85	Ü	5	VAALERS, HAMERLY	٦		R BLEGE	77994 A	GE.	08300	LDF	83 1		0 2	₩	5	3 1	
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5A VAALERS•HAMLRLY• L 171 R BLEGEN 477994 ANGE ND84001 WLDF *85 10* 5A HAMERLY-SVEA LSIC 171 USDI-F&WS 477994 ANGE ND84001 WLDF *85	С	5	VAALERS HAMERL	١		R BLEGE	77994 A	GE GE	08300	NIO	85		35	_	5	3 1	
5A HAMERLY-SVEA LSIC 1 71 USDI-F&WS 477994 ANSE VD84001 WLDF *8	<u></u>	2	VAALERS, HAMLRL			R BLEGE	77394 A	<u>ن</u> ا	08300	LDF	85 1		0 35	1	5	3 1	
	<u>_</u>	2	HAMERLY-SVE	\$1		USDI-F&	77394 A	S FI	08400	LDF	$\infty$			7	3	3 4	

## RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=P00R 9=VERY P00R

833 VIG (Plant vigor)	910 ADPT (Adaptation to site)	713 STAT (Status: active, inactive,			
Legend: 505 CNT NUM (FIPS County Code)	502 Fibbs form no (field pidneting number: state, year pidned, sequence) 517 PURP (Purpose)	801 YR RC (Year of record)	531 AMT ACRE (Number of acres)	523 SD RATE (Seeding rate)	830 STD VIS (Visual rating of stand or plants per square yard)

, terminated)

A SJMMARY OF HERBACEOUS FILL) PLANTINGS IN NORTH DAKOTA 10/27/1987

1	6	1 910 /1	C AUPT ST	€0	-	1	33	3	1	-	₩	-	m	<b>~</b>	-	-	-	m	3	-	~	€O.	<b>∞</b> 1	~ -	2		3	3	33	3	3	6	6	33	6	-	-
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100   101   102   102   103	0	30 G TD	15 <						~	$\sim$												6	6	<b>-</b> -	<b>-</b> 10	7	6	6	3	6	6			2		đ	٥
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ALEAN SOIL SERIES	,		<del>م</del>	DF	N	N.	R D		N.		*	DΕ	*		DF	DF	DF	DF	z	N N	DF	DF	D F	T (	. L	D.F.	DΕ	DF	DΕ	0F	DF	DF	DF	DF	DF	DF	¥ .
4 506 507			0 P	0.1	0.3 5	0.3 S	J 60	18	10 S	0 4	0	03 W	0	0	11 😾	12 4	02 ₩	02 😾	04 S	04 S	01	0.1	010	T :	100	03 1	03 W	03 W	<b>78</b> 66	M 66	<b>#</b> 66	M 66	M 66	0.5	0.5 14	0.5	0 80
11   12   13   14   15   15   17   17   17   17   17   17	-	UZ IEL	LNI	084	084	084	086	086	083	690	690	081	081	081	081	081	084	084	085	085	081	081	081	180	081	081	081	081	081	081	081	081	081	082	082	082	000
ACCN	-	UZLAV	7 M B D	NGE	AVI	AVI	EMA	EMA	000	S	A V 1	AVI	A V 1	AVI	NGE	AVI	IVI	I V I	NGE	NGE	NGE	A V 1	A V 1	A V	N G E	S Z	NG	NG	NGE	AVI	AV1	A V 1	AVI	AVI	AVI	AVI	ALLT
A COL   SERIES   SOID   711   SOID   SOID   AND   ACCORDERATOR   ACCORD	C		œ	94	00	0 0	64	64	8.0	9.6	0.2	0 1	0.2	0 2	94	0.2	0 7	2 0	96	94	96	0.2	0.5	2 0	200	96	96	46	6	0.2	0.2	0.5	0.2	0.2	0 2	0.2	0
9 506 507  9 501 409 CNI  9 CNIL 409 CNI  1	-	CCN	UMB B	477	019	019	035	035	16	11	78	78	7 8	7.8	11	78	78	7.8	11	11	11	78	78	200	77	7.7	11	11	11	78	78	78	18	78	78	78	0
4 506 507 501 409  4LRA SOIL SERIES TEXT ARE 055A HAMERLY-SVEA LSIC 055A HAMERLY-SVEA LSIC 055B WYARD-HAMERLY 055B GARDENA 05	1 1 1	00 00 1N	NUM COOPERATO	1 USDI-F&W	1 USD1-FW	1 USDI-FW	1 NO STATE HWY DEPT	1 LAKE REG COMM COLLE	USD1-FWS STONY SLOU	7 I-29 INTERSTATE	7 ND HIGHWAY DEPT.1-2	7 USDIOFWSOVALLEY CIT	7 USD1-FWS,VALLEY C1T	7 USDI-FWS+VALLEY SIT	7 USDI.FWS.VALLEY CIT	7 USDI FWS VALLEY CIT	7 US01-FW	7 USDI-FWS	1 LINCOLN-OAKES NUR	1 LINCOLN-OAKES NURS	3 FT RANSOM STATE PAR	3 FT. RANSOM ST. PARK	3 FT. RANSOM ST. PAR	S FI. RANSOM SI. PARK	3 FI RANSOM SI PK	3 FT RANSOM ST P	3 FT RANSOM ST P	3 FT RANSOM ST PK	3 FT RANSOM STATE PAR	3 FT. RANSOM ST. PAR	3 FT. RANSOM ST. PAR	3 FT RANSOM STATE PAR	3 FT. RANSOM ST. PAR	7 L ROGN	7 L ROGN	7 L ROGN	MUCCO I
4 506 507  912 912 801  912 913 801  913 914 801  913 915 8 HAMERLY-SVEA  913 914 915 915 915  914 915 915 915  915 916 916 916 916  915 916 916 916 916  915 916 916 916 916  915 916 916 916  915 916 916 916  915 916 916 916  916 916 916 916  917 916 916  918 917 916  918 918 918 918 918  918 918 918  918 918 918 918  918 918 918 918  918 918 918 918  918 918 918  918 918 918 918  918 918 918 918  918 918 918 918  918 918 918  918 918 918 918  918 918 918 918  918 918 918 918  918 918 918  918 918 918 918  918 918 918 918  918 918 918 918  918 918 918  918 918 918 918  918 918 918 918  918 918 918 918  918 918 918  918 918 918 918  918 918 918 918  918 918 918 918  918 918 918	-	<b>-</b> 0	. H	1	1	1	1	7	C	Cl	2	2	2	$\sim$	2	2	2	2	2	2	2	7	CJ (	<b>∼</b>	ν n		2	2	2	C	C	~	0	2	2	2	C
4 506 507  9LRA SOIL SERIES  055A HAMERLY-SVEA  055A HAMERLY-SVEA  055B BARNES-SVEA  055B WYARD-HAMERLY  055B GARDENA  055B FORDVILLE	C	i o	×	SI					ب			ر	-	-	SI	-	_	_			-	$\overline{}$	<b></b> 1	<b>-</b>	<b>→</b>	-	$\overline{}$	-	_	_	د	_	_	-	-	-	-
			IL SER1E	AMERLY-SVE					ARNES-SVE			ARNES-SVE	YARD-HAMERL	YARD-HAMERL	YARD-144ERL	YARD-HAMERLY	YARD-HAMMERL	YARD-HAMMERL			AR JEN	ARDEN	ARDEN	ARDEN	ARUEN	ARDEN	ARDEN	ARDEN	ORDVILL	ORDVILL	ORDVILL	ORDVILL	ORDVILL	ARG	ARG	ARG	ADG
4									m			9	9	9	5	9	5	5	2	5	2	2	55	55	5 5 5	55	55	2	5	5	5	5	2				
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RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=POOR 9=VERY POOR

A SJMMARY OF HERBACEOUS FIELD PLANTINGS IN NORTH DAKOTA 10/27/1987

713	T STA		3 A		2 1	1 5	-	3 1	I	_	<b>I</b>	3 I	-	_ I	1	3 1	<u> </u>	1 -	-	2 1	2 1	1		1 5			7 5	7	-	<b>-</b>	7 5	-	-	_		I	4
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821	0 C M	-	6	-	2	S		1	1	7	2	7	1	1	1	1	5	S	5	_	7	0	0	7	0	0	-	-	₩	3	-	ĸ	ĸ	7	1	3	)
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830 3TD	$\vdash$		2	4		42	1	-	₩	1	9	1	2	2	120			19		2		10			0 I		6	1	1	1	1		10		1	10	
<b>523</b> SD	⋖								8.0				5 • 0		5 • 0				•	8.0			8 • 0	•		2 • 0					10.0		• 0	• 0	10.0	• 0	
531 AMT	S			5 • 0		•	•		10.0	0						2.0				8.0	•		8 0	•		8 • 0		•		•	1.0			0	10.0	0	)
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517	PJRP	NICS	IC				10	10	10	<b>I</b> 0	AS	10	10	10	10	5	07	EA	07	10	0	BEAN	L <sub>0</sub>		BEAN				WLOF		LD	WLDF	10				
O2 IELD	7	8301	8500	7201	7201	7201	8001	8001	8200	8200	8301	8100	8100	8100	8 100	7101	7101	7101	7202	7800	7800	078002	7800	7800	7800	7800	8100	8100	8100	8100	8100	8100	8100	8100	8100	8100	
in in	30L P	<i>₹</i>	R3 N	I 2 N	I2 N	I 2 N	Z Z	N N	F	Z W	I2 N	I 2 N	I2 N	12 V	I2 N	FI S	<b>&gt;</b>	N N	I 2 N	N L	N W	QE	<del>,</del>	I 2 N	I 2 N	I 2 N	<b>&gt;</b>	Z W	Z L	<b>₹</b>	I 2 N	I 2 N	I 2 N	U2 N	U2 N	U2 N	1
00 PL		⋖	ш	٥	۵	٩	⋖	⋖	A	<b>«</b>	æ	۵	Р	٩	٩	⋖	4	V	Р	V	A	A AN	⋖	٥	۵	Р	⋖	4	A	V	Р	Р	٥	S	S	S	)
001 ACCN	$\supset$	7799	5404	7800	1800	7800	1199	1199	1199	1199	7239	7800	7800	7800	7800	1555	1565	1565	7800	1199	1199	47799	1199	7800	7800	7800	1199	1139	1199	7199	7800	7800	7800	7800	7800	7800	
505 503 CNT	<b>7</b>	L ROGNE	7 F SCHUMA	F ZURCHE	F ZURCH	F ZURCHE	J. CLARK SALYER VW	J. CLARK SALYER VI	J. CLAR	J. CLARK SALYER VW	9 A GOTVASLE	9 USDI-FWS WP	9 USDI-FWS WP	9 USDI+F&WS+W	9 USDI-FWS WP	3 WILDLIFE RES. CENTE	3 WILDLIFE RES.	3 WILDLIFE RESEARCH C	3 ARROWNOOD REFUG	3 USDI-FUS, NP.IR	3 USD1-FUS, NP.R	93 USDI FRUS, NPWRC	3 USDI-FUS, NPUR	3 USDI-FUS, NP4R	3 USDI FRUS, NP4R	3 USDI-FUS, NPUR	3 USDI-FUS+ NPUR	3 USDI-FUS, NPWR	3 USDI, FUS, NPWRC	3 USDI-FUS, NPWR	3 USDI-FUS, NP4R	3 USDI, FWS, NPWRC	3 USDI-FUS, NPWR	3 USDI-FUS, NPUR	3 USDI-FUS, NP4R	3 USDI-FUS, NP4R	
/11 :: J.M	x	~	~	٠	~	3	~	8	٣	3	~>	~	٣	ĸ	*	4	*	4	4	\$	4	4	4	4	4	4	5	4	4	4	4	4	b	\$	4	4	
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	L SERIES	ARGO	ARC				ARNE	ARN	HECLA	HECL	ARNES	TIRIU	I	TIRIU	TIRIU	APRAIRI	LAPRA	LAPRAIRI		B LAPRAIRI	B LAPRAIRI	B LAPRAIRIE	B LAPRAIRI	B LAPRAIRI	B LAPRAIRI	B LAPRAIRIE	B BARNES-SVE	B BARNES-SVE	B BARNES-SVE	B BARNES-S	BARNES-SVE	B BARNES-SVE	BARNES-SVE	8	В		
5 0 <i>l</i>	A SUI	LE							4															103	. (2)	103				1.00	-	1.00	~		100	-	
3.06 5	SO	∩56 F	99				55	55	055A	55	2					2	S	S	S	2	S	0.55	2	2	2	2	2	0.55	3	0.55	9	5	093	5	055	5	)
06 5	LRA SU	0 056	950	ON.	02	Q N	055	055	055	055	0.5	01:	ON	٥٨	Q.	0.5	05	0 0 0	0.5	0.5	0.5	2	0.5	0.55	0 05	5, (	0.5	0.5	0 05	0 05	60 O	0 15	0 09	0 05	0 05	0 05	;

RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=P00R 9=VERY P003

A SJYMARY OF HERBACEOUS FIELD PLANTINGS IN VORTH DAKOTA 10/27/1987

•	504	504 506	201	509	711	505 503	503	001 ACCN	002 PLANT	502	517	801 5	531 523 AMT SD	\$ 830	833	821	910	713
	ST	MLKA	MLKA SOIL SERIES	TEXT	AREA		COOPERATOR	NUMBER	SYMBOL	0	PURP		L.	E L	S VIG	OC A	TACA	STAT
* *																		
*	ON	0558	BARNES-3USE	_	4	33	USDI+FUS+NPWRC WOODW	478007	STVI4	VD81013	WLDF	*85		2	0 3	۳	<b>-</b>	
41	O N	0558	FORDVILLE-RENSHA	ب	4	93	M HJECKLE	478001	PAVI2	VD83015	PAST	*85		4	0 1	€	٣	
*	QN	0558	LAPRAIZIE	_	4	93	USDI-FWS. NPWRC	478006	SONUS	VD84007		*84			3 5	6	m	
4	ON	0.558	LAPRAIZIE	_	4	93	USDI-FUS+ NPWRC	478006	SONUS	ND84007		*85			2 3	6	-	_
•	ON	055B	LAPRAIRIE	_	4	93	USDI-FUS NORTHERN PR	478006	SOVUZ	VD84007	WLDF	*85			2 3	6	-	d
*	N O	0558	LAPRAIRIE	_	4	93	USDI-FUS. NP#RC	478006	SONUS	ND84007		*86			3	6	-	4
*	O N	055B	LAPRAIRIE	_	4	9.3	USDI-FWS NORTHERY PR	478006	SOVUZ	ND84007	WLDF	*86			₩)	6	-	A
•	O N	0.54	BELFIELD-RHOADS	SICL	5	89	A BICL	116252	AGINT	010880N	NICS	*85		38	8 3	3	3	
#	ON	054	VEBAR-PARSHALL	FSL	5	89	G G0ETZ	477995	CALO	ND84005	RNGE	*85						_
łŧ	QN	0.54	MORTON-FARLAND	SIL	5	89	M B08B	116252	AGINT	ND84006	SDIN	*85		3.4	***		-	_
4	٩D	924	VEBAR - PARSHALL	FSL	3	8 9	G G0ET2	411995	CALO	VD85930	RNGE	*85	2.1 1.7	.7		7		_

RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=P00R 9=VERY P00R

# A SJYMARY DE \*3DVILLA\* BIS BLUESTEM FIELD PLANTINGS IN NORTH DAKOTA 11/09/1987

833 821 910 713	I STAT	-	·		
910	ADPI				
821	J C /#		-	-10	വ
	VI 3		*	M	· *1
830 STD			1	19	19
523 SD	RATE				
531 AMT	ACRE		2.0		2.0
901 YR	36		+84	*85	* 85
517	PLNT NO PJRP	LO BEAJ			
502 FIELD		NO71010	ND71010	ND71010	VD7101
002 PLANT	SYMBOL	8 ANGE		8 ANGE	ANS
001 ACCN	NUMBER	31555	315558	31555	315558
505 503 CNT	NUM COOPERATOR	33 AILDLIFE RESEARCH CT	93 WILDLIFE RES. CENTER	33 AILDLIFE RESEARCH CT	93 WILDLIFE RES. CEVTER
7111 ADM 0	A FI A	4	4	4	#
503 7	TEXT A	_	_	_	_
507	SOIL SERIES	LAPRAIRIE	LAPRAIZIE	LAPRAIRIE	LAPRAIZIE
206 507		055 LAPRAIRIE	J55 LAPRAIRIE	LAPRAIRI	APRAIZI
9	ST MERA SOIL SERIES	55 LAPRAIRI	55 LAPRAIRI	55 LAPRAIRI	55 LAPRAIRI

PATING SYSTEM 1=EXCEL\_ENT 3=6000 5=FAIR 7=POOR 9=VERY POOR

Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
801 YR RC (Year of record)
531 AMT ACRE (Number of acres)
533 AMT ACRE (Seeding rate)
830 STD VIS (Visual rating of stand or plants per square yard)
830 STD VIS (Weed competition)
821 WDC (Weed competition)
910 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

### 1 SUMMARY OF VOS-4 BIS BEJESTEM FIELD PLANTINGS IN NORTH DAKOTA 11/12/1987

713	STAI	_	_	_	_	_	П	I	Ţ	_	_		_	_	_	_	ı	4	a	4	_	_		_	۵	d	pared		_			_	_	_	_	1	_
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833	VI3	-	-		÷C	-	-		Ę	_	9	*		ĸ٦	3	7	_		_	<b>→</b>		-		-		-		-		6	iC	ın		*		ĸ	3
830 STD			20	7	Ю	33	1	7	6	6	6	8		2	2	35	35			25		2.0		2.0		36		_	3	7	6	6		3	7	1	8
523	< <			10.0	0	0	• 0	0	0	0	•	0		0 • 6	•		0.6								• 9	80			•	•	2 • 0	•					8 • 0
531 AMI	. U			10.0	0	0	0							0	10.0		10.0								1.0												10.0
8 0 1 Y R		8	8	*81	8	$\infty$	8	8	8	8	$\infty$	8		8	8	*85	8		*85	8		*85			*85	œ		* 85	œ	80		8			*80	8	œ
517	JRP	$\alpha$	ARD					10	0	2	2	0	NICS	10	10	1 C	2	C	10	10				WLDF	0	C	2	_	2	LD	2	LD	<b>L</b> D	-	<b>L</b> D	2	) ]
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	<u>α</u>	94	96	6	46	9.6	46	94	94	9.6	96	9.6	46	94	56	96	64	6	6	94	96	96	46	94	94	96	94	94	94	96	9.6	46	96	56	96	6	46
	) 🗀	11	11	11	11	11	11	11	11	17	11	11	4779	11	11	11	11	11	11	11	11	11	11	11	11	11	11	77	11	11	11	11	11	11	11	11	11
503	COOPERATOR	NO HIGHWAY DEPT, I-2	NO HIGHWAY DEPT, I-2	USDI-FWS,V	JSDI-FWS+VALLEY SIT	USDI-FWS, VALLEY CIT	USDI-FWS, VALLEY SIT	FT RANSOM ST P	R BLEGEN	R BLEGE	R BLEGE	R BLEGE	R BLEGE	USDI-FR-	USDI-F&W	USDI-F&WS	I-29 INTERSTAT	I-29 INTERSTATE	USDI*FWS*VALLEY SIT	USDI + FW	LINCOLN-OAKES NURS	LINCOLN-OAKES NJ3S	FT RANSOM STATE PA	FT RANSOM STATE SAR	FT RANSOM ST PK	FT RANSOM ST P	FT RANSOM ST P	FT RANSOM ST PK	FT RANSOM STATE PA	FI RANSOM STATE PAR	J. CLARK SALYER NW	J. CLARK SALYER VA	J. CLARK SALYER VW				
505 2NI	$\neg$	1.7	1.7	17	17	17	17	73	73	73	7.3	73	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	17	17	1 7	1.7	2.1	21	73	73	7.3	73	73	7.5	73	73	9	6	6
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509 7 S01L 4	L X			_		_	_	_	_	۔	_	_	_	ب	۔	_		S	<u>.</u>	S			LSIL	S			SIL	<b>—</b>	_	$\blacksquare$	$\blacksquare$	$\blacksquare$		۔	_	٦	LFS
507	SOIL SERIES			YARD-144ER	YAKD-HAMERL	YARD-HAMERL	YARD-HAMERL	ORDVILLE	ORJVILL	ORDVILL	ORDVILL	ORDVILLE	VAALERS HAMERLY	<b>AALERS+HAMERLY</b>	AALERS, HAMERL	AALERS HAYERL	AALERS, HAMERL	AMERLY-SVE	AMERLY-SVEA	AMERLY-SVE			WYARD-HAMERLY	YARD-14MERL			GARDENA	ARDEN	ARJEN	ARJEN	ARDEN	ARDEN	ORDVIL	ORDVILL	ARVE	ARVE	ECLA
900	MLZA			5	5	$\mathcal{S}$	5	55	55	55	55	55	155A	55	52	55	55	52	55	55	5	99	5.5	5	55	5 2	55	55	55	55	55	55	55	55	5 2	55	55
504 2	ST	0 N	0 N										ND 0																								
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RATING SYSTEM I = EXCELLENT S=6000 5=FAIR 7=P00R 9=VERY P00R

(Adaptation to site) (Status: active, inactive, terminated) (Plant vigor)
(Weed competition) 833 VIG ( 821 WDC ( 910 ADPT 713 STAT Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
801 YR RC (Year of record)
531 AMT ACRE (Number of acres)
523 SD RATE (Seeding rate)
830 STD VIS (Visual rating of stand or plants per square yard)

A SUJMARY OF JOS-4 3IS BLUESTEY FIELD PLANTINGS IN NORTH DAKOTA 11/12/1987

504 506 507  ST 112A SOIL SERIES  ND U55A 14CLA  ND U55B LAPRATRIE  ND U55B BARNES-SVEA
JO6 597  1LRA SOIL SERIES  USSA HECLA  0553 LAPRAIRIE  USSB LAPRAIRIE  0558 LAPRAIRIE  0558 LAPRAIRIE  0558 BARNES-SVEA  0558 BARNES-SVEA  0558 BARNES-SVEA
506       507         519       711         801L       801L         80558       18         80568       18         80568       18         80568       18         80568       18         80568       18
306 507 1LRA SOIL SERIES LAPRAIR 0553 LAPRAIR 0558 LAPRAIR 0558 LAPRAIR 0558 LAPRAIR 0558 3ARNES- 0558 3ARNES- 0558 3ARNES- 0558 3ARNES-

RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=POOR 9=VERY POOR

A SUMMARY OF INDIANGRASS (SORCHASTRUM NUTANS (L.) VASH) FIELD PLANTINGS IN NORTH DAKOTA 11/09/1387

0 713	JOC ADPT STAT		1	-	3 I	1 1	1 1	đ	3 A	1 A	1 A	1 4	1 A
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53 82	VI3 43			10	_	3	2		0.	3	€	3	~
850 8 STD	VIS V			6		10	10		₩	2	2		
523 8 SJ S	RATE V			0 • 0	10.0		0 • 0 1						
531 5 AMT S	ACRE R			10.0 10.0	10.01		10.0 10.0						
801 YR	3 C			*83	*84	*85	*85		*84	*85	*85	*86	*86
			WLDF			4LOF		WLDF		WLDF		WLDF	
302 FIELD	PLNT NO PJRP			VD81009	VD81009	VD81009	VD81009	VD84007	70048CN	VD84007	ND84007	VD84007	1084007
002 PLANT	SYMBOL		SONUS	SONUS	SONUS	S0 V U 2	SOVUZ	SONUS	SONOS	SOVUZ	SONUS	SOVUZ	SOVUS
0 0 1 A C C N	NUMBER		478008	478006	478006	478005	478006	478006	478005	478005	478306	478706	478006
505 503 CVI	VJM COOPERATOR		93 USDI, FWS, NPWRC, WJODW	33 USDI-FWS, NPARC	33 USDI-FWS, NPARC	93 USDI FRUS NP43C+W33DW	93 USBI-FWS. NP. ARC	93 USDI-FWS VORTHERN PR	93 USDI-FUS, NPARC	93 USDI-FWS NORTHERN PR	93 USDI-FWS. NPARC	93 USDI-FWS NORTHERN PR	33 USDI-FWS, NP4RC
7111 A D M	AREA		₹	4	4	4	4	₹	4	4	ħ	Ŧ	4
507 S01	TEXT		1			_1		٦	ب				٦
203	MLRA SOIL SERIES		3 A H VES-SV FA			3 AR VES-SVEA		LAPRAIRIE	LAPRAIZIE	LAPRAIZIE	LAPZAIZIE	LAPRAIZIE	LAPRAIZIE
9 0 c	ALRA		6558	9558	0558	0558	1553	0553	0558	0558	0558	0558	0558
504 20b	ST		0 <i>V</i> :	ND	Q N	ΩN	O P	Q N	Q N	O.N	٩	۵N	QN
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RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=POOR 9=VERY POOR

Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
801 YR RC (Year of record)
531 AMT ACRE (Number of acres)
523 SD RATE (Seeding rate)
830 STD VIS (Visual rating of stand or plants per square yard)
830 STD VIS (Weed competition)
910 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

# A SUNHARY OF TO-9 PRAIRIE SANDREED FIELD PLANTINGS IN NORTH DAKOTA 11/15/1987

713	STAT	તત.
910	VIS VIS AUC ADPT STA	
855 821 910	307	_
833	V I 3	
830		_
523	RAIE	2.1 1.7
5.51 AM1	ACRE	2.1
901 531 YR AMT	3 C	8 x 8 x 9
517	PJRP	2 2 2 2 0 0 0 0 0 0 0 0 0
502 FIELD	SYMBOL PLNT NO PURP	VD84005 VD84005 VD85050
002 PLANT		5 CALO 5 CALO 5 CALO
0 0 1 A C C N	NUMBER	417395 477395 477395
711 505 apm car	TEXT AREA NUM COOPERATOR	FSL 0 89 0 60512 FSL 0 89 0 60512 LFSL 0 89 0 60512
594 506 507	SI MLAA SOIL SERIES	VD 054 VEGAR-PARSHALL VD 054 VEGAR-PARSHALL VD 054 VEGAR - PARSHALL
	*	

RATING SYSTEM LEEXCELLENT 3=3000 SEFAIR 7=P003 9=VERY P003

Legend:
505 CNI NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
801 YR RC (Year of record)
523 AMT ACRE (Number of acres)
523 SD RATE (Seeding rate)
830 STD VIS (Visual rating of stand or plants per square yard)
831 VIC (Plant vigor)
821 WDC (Weed competition)
910 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

(Plant vigor)
(Weed competition)
(Adaptation to site)
(Status: active, inactive, terminated)

833 VIĆ 824 WDC ( 910 ADPT 713 STAT

Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
801 YR RC (Year of record)
531 AMT ACRE (Number of acres)
523 SD RATE (Seeding rate)
830 STD VIS (Visual rating of stand or plants per square yard)

RATING SYSTEM 1=EXCELLENT 5=6000 5=FAIR 7=POOR 9=VERY POOR

# A SUMMARY OF NDG-955-38 STITCHGRASS FIELD PLANTINGS IN NORTH DAKOTA 11/09/1987

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507	A SOIL SERIES	HAMPD A	A VALLENS HAM	A KALLENG-LIBITENE	A VALLERS-HAMERL	A SVEA-HAMERE	A SVEA-HAMERL	A SVE	A SVEA-HAMERL	A SVE	A SVE	A SVE	A SVEA	A VALLERS-HAMER	A VALLERS-HAMERL	C HEGNE				A	A HAMERLY-SVE	A HAMERLY-SV	A HAMERLY-SVE	A HAMERLY-SVE	A HAMERLY-SVE		WYARD-HAMERL	WYARD-14MERL	WYARD-	WYARD-HAMERL	B GARDEN	B GARDEN	3 GARDEN	B GARDEN	B GARDENA	B FORDVILL	B FORDVILLE	3 FORDVIL-
50c	<u>۲</u>	LC.	) (	) u	O L	n t	2	5	5	S	5	2	2	S	2	S	5	2	S	2	355	S	S	S	2		S	2	2	S	2	2	2	2	2	S	055	S
0 C	15	5	2 0	2 2		) ( 	2	07.	Q N	202	O.N.	9	ON	ON	ON	ON	NO.	0 1	07	ON	O N	CZ	9	02	QN.	0 N	ND.	ON	N.	O N	QN	ON.	ND	ND	ON	02	ON	0
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A SUAMARY DE VDS-960-38 SWITCHSRASS FIELD PLANTINGS IN NORTH DAKOTA 11/09/1987

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509 711 505 503 SOIL ADM CNT	EXT AREA NU	AC PIATO MCDNAC 19 7 C	2 73 FT RANSON ST. DARK	IC 2 77 L ROSNE	IC 2 77 L ROSN	IC 2 77 L ROGN	IC 2 77 L ROGN	IC 2 77 L ROSN	FS 3 9 F ZURCHE	3 F ZURCH	5 9 F ZJRCHE	FS 3 9 F ZURCHE	S 69 USDI+F&WS+W	S 59 USDI-FWS 4P	S 59 USDI-FUS AP	-IOSU 65	S 53 USDIFEUS, UP	93 ARROWWOOD REFU	4 93 USDI FRUS, NPWR	93 USDI-FUS, NP.	4 93 USDI-FUS, NPUR	4 93 JSDI, F&WS, NP.JR	4 93 USDI, FWS, NPWR	33 USDI-FWS, NAURC	33 USDI • F	93 USDI-FUS, NOWR
204 206 507	ST MLRA SOIL SERIES	TACOUS ESSU C	2 2	D 056 FARSO	D 056 FA	J 056 FAR3	D 055 FA33	0 955 FARS	0,	O۶	Q7	0	0 ST141	D ST	O STIRI	ND STIRIUM	D STIRI	0 05	O 0558 LAPRAIRI	D 055B LAPRAIRI	U USSB LAPRAIRI	D 055B LAPRAIRI	D 0553 BARNES-SVE	D 693 3ARVES-SVE	D (1558 BARVE	D 093 3ARVES-SVE
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RATING SYSTEM 1=EXCELLENT S=5000 5=FAIR 7=P30R 9=VERY P003

# A SUMMARY DE \*FORESTBURG\* SWITCH, RASS FIELD PLANTINGS IN NORTH DAKDTA 11/09/1987

13	FAI									
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211	PJRP		#L0F	M11.0F	4 L O F	WLDF	WLDF	WILDF	PASI	PAST
	PLNT NO PJRP		001		0.01					V 383015
502 FIELD	PLNT		10087CV	VD 78001	VD80001	VD80001	VD81003	VD81003	V 78 3 0 1 5	V 383
002 PLANT	SYMBOL		PAVI2	PAVI2	PAVI2	PAV12	PAVI2	PAVI2	PAVI2	PAVI2
002 PLA	SY		1 PA							I PA
001 ACCN	NUMBER		478001	478001	478001	478001	478001	478001	478901	478301
			ALICE	ALICE	1 I CE	IL 1 CE	TILL	YIII V		
			AK !! .		AKEA	AKEL	ALLEY	ALLEY		
	ATOR		WS.LAKE		JSOLAKE A	WS, LAKE A	WS, VALLEY	WS, VALLE	KLE	KLE
3	OPERATOR		DIPFWSPLAKE		DIOFUS, LAKE A	DI, FWS, LAKE A	DI, FWS, VALLEY	DI, FWS, VALLE	HJECKLE	HJECKLE
5 503	JM COOPERATOR		ZI USDI FWS LAKE ALICE	USUI, FWS, LAKE			I7 USDI, FWS, VALLEY SIT		93 M HJECKLE	3 4 HJECKLE
1 505 503			1 71 USDI.FWS.LAKE		I 71 USDI, FUS, LAKE A	1 71 USDI, FWS, LAKE A	2 17 JSDI, FWS, VALLEY	2 17 USDI, FWS, VALLE	4 93 4 HJECKLE	4 93 4 HJECKLE
711	AREA		1 7.1 USDI • FWS • LAKE	USUI, FWS, LAKE	I 71	1 71			93	
	AREA		L 7.1 USDI.FWS.LAKE	USUI, FWS, LAKE					L 4 93	4 4
711	AREA		L 1 7.1	L 1 USDI, FWS, LAKE	I 71	1 71			L 4 93	4 4
711	TEXT AREA		L 1 7.1	L 1 USDI, FWS, LAKE	I 71	1 71	L 2 17	L 2 17	L 4 93	4 4
711	TEXT AREA		L 1 7.1	L 1 USDI, FWS, LAKE	SIC I 71	SIC 1 71	L 2 17	L 2 17	L 4 93	4 4
509 711 PCA 108	TEXT AREA		HANTRLY-SVEA L 1 7.1	HAMERLY-SVEA L 1 11 USUI+FWS+LAKE	HEGNE SIC I 71	HEGNE SIC 1 71			FORDVILLE-REVSHA L 4 93	4 4
509 711 PCA 108	TEXT AREA		L 1 7.1	L 1 USDI, FWS, LAKE	SIC I 71	SIC 1 71	L 2 17	L 2 17	L 4 93	
711	AREA		HANTRLY-SVEA L 1 7.1	HAMERLY-SVEA L 1 11 USUI+FWS+LAKE	HEGNE SIC I 71	HEGNE SIC 1 71	BARVES-SVEA L 2 17	BARVES-SVEA L 2 17	FORDVILLE-REVSHA L 4 93	4 4
509 711 PCA 108	TEXT AREA	4.4	055C HANTRLY-SVEA L 1 7.1	055C HAMERLY-SVEA L 1 71 USDI, FWS, LAKE	055C 4EGVE SIC I 71	055C HEGNE SIC 1 71	PS6 BARVES-SVEA L 2 17	056 BARVES-SVEA L 2 17	0558 FORDVILLE-REVSHA L 4 93	0558 FORDVILE-RENSHAL 4

RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=POOR 9=VERY POOR

Legend:
505 CNT NUM (FIPS County Code)
505 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
801 YR RC (Year of record)
531 AMT ACRE (Number of acres)
533 SD RATE (Seeding rate)
830 STD VIS (Visual rating of stand or plants per square yard)
830 STD VIS (Weed competition)
821 WDC (Weed competition)
910 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

### A SUMMARY OF WOODY FIELD PLANTINGS IN NORTH DAKOTA 11/04/1987

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PERATO		DYE	$\exists \lambda c$	3 Y C	AL	HINKL	RISKEDA	ROWN - R KENDAL	304N - R KENDAL	JACNJA - NUCA	AWLEY - SCHRADE	AULEY - SCHRADE	AULEY - SCHRADE	JAENZ - MIKKELSE	DRENZ - MIKKE_SE	JRENZ - MIKKELSE	ARC	YRO	Y & D	Y OF GRAND FORK	Y DF SRAND FORK	ما لد — ⊢ ما لم		ENDRICK	ENDRICK	ENDRICK	<b>JEGAAR</b>	010	7	0	EDTERT MALTING C	EDIERT MA_TING C	EDTERT MA_TINS C	EDIERT MALTING C	EDTERT MALTING C	EDTERT MALTING C
503 CODPERATO		E WDYE	∃XCM ∃	BYCW B	I. AL	R. HINKL	3. RISKEDA	D BROWN - R KENDAL	D BROWN - R KENDAL	JARJUN - R KENDAL	V DAWLEY - SCHRADE	V DAWLEY - SCHRADE	V DAWLEY - SCHRADE	3 LORENZ - MIKKELSE	3 LORENZ - MIKKE_SE	5 LORENZ - MIKKELSE	- MARC	R MYRO	R MY RD	CITY OF GRAND FORK	CITY DF SRAND FORK	N KILLE OFFITE	G REITE	M HENDRICK	4 HENDRICK	M HENDRICK	T ODEGAARD	J 40L0	J W J	JOM	FRDEDTERT MALTING C	FRDEDIERT MA_TING C	FROEDTERT MA_TINS C	FROEDIERT MALTING C	FRDEDTERT MALTING C	FADEDTERT MALTING C
03 JOPERATO		E WDYE	∃XCM ∃	BYCW B	I. AL	R. HINKL	3. RISKEDA	D BROWN - R KENDAL	D BROWN - R KENDAL	JARJUN - R KENDAL	9 V DAWLEY - SCHRADE	3 V DAWLEY - SCHRADE	9 V DAWLEY - SCHRADE	9 3 LORENZ - MIKKELSE	9 5 LORENZ - MIKKE_SE	3 G LORENZ - MIKKELSE	1 - MARC	35 R MYR0	35 R MY 2D	35 CITY OF GRAND FORK	35 CITY OF SRAND FORK	X DEFILE	3 G REITE	3 M HENDRICK	3 4 HENDRICK	3 4 HENDRICK	3 T ODEGAARD	39 J WOLD	39 J W DL	39 J WOL	17 FRDEDTERT MALTING C	77 FRDEDIERT MA_TING C	77 FROEDTERT MA_TINS C	77 FROEDIERT MALTING C	77 FRDEDTERT MALTING C	77 FADEDTERT MALTING C
1 505 503 MIN CNT EA NUM CODPERATO		E WDYE	∃XCM ∃	BYCW B	I. AL	R. HINKL	3. RISKEDA	D BROWN - R KENDAL	D BROWN - R KENDAL	JARJUN - R KENDAL	9 V DAWLEY - SCHRADE	3 V DAWLEY - SCHRADE	9 V DAWLEY - SCHRADE	9 3 LORENZ - MIKKELSE	9 5 LORENZ - MIKKE_SE	3 G LORENZ - MIKKELSE	1 - MARC	35 R MYR0	35 R MY 2D	35 CITY OF GRAND FORK	35 CITY OF SRAND FORK	X DEFILE	G REITE	3 M HENDRICK	3 4 HENDRICK	3 4 HENDRICK	3 T ODEGAARD	39 J WOLD	39 J W DL	39 J WOL	17 FRDEDTERT MALTING C	77 FRDEDIERT MA_TING C	77 FROEDTERT MA_TINS C	77 FROEDIERT MALTING C	77 FRDEDTERT MALTING C	77 FADEDTERT MALTING C
711 505 503 L AJMIN CNI I AREA NUM CODPERATO		E WDYE	∃XCM ∃	BYCW B	I. AL	R. HINKL	I IS 3. RISKEDA	D BROWN - R KENDAL	D BROWN - R KENDAL	JARJUN - R KENDAL	9 V DAWLEY - SCHRADE	3 V DAWLEY - SCHRADE	9 V DAWLEY - SCHRADE	1 19 3 LORENZ - MIKKELSE	1 19 5 LORENZ - MIKKE_SE	1 19 5 LORENZ - MIKKELSE	1 - MARC	1 35 R MYRO	1 35 R MYRD	1 35 CITY OF GRAND FORK	1 35 CITY OF SRAND FORK	X DEFILE	3 G REITE	3 M HENDRICK	3 4 HENDRICK	3 4 HENDRICK	3 T ODEGAARD	39 J WOLD	39 J W DL	39 J WOL	L 2 17 FRDEDIERT MALTING C	L 2 77 FRDEDIERT MA_TINS C	L 2 77 FROEDTERT MA_IINS C	L 2 77 FROEDTERT MALTING C	L 2 77 FRDEDTERT MALTING C	L 7 77 FADEDTERT MALTING C
711 505 503 AJMIN CNI AREA NUM CODPERATO		1 5 E WDYE	∃XCM ∃	1 5 E WOYE	I. AL	R. HINKL	IL I S 3. RISKEDA	1 19 D BROWN - R KENDAL	1 19 0 BROWN - R KENDAL	1 13 D BRJUN - R KENDAL	1 19 V DAWLEY - SCHRADE	1 13 V DAWLEY - SCHRADE	1 19 V DAWLEY - SCHRADE	IL 19 3 LORENZ - MIKKELSE	IL 19 5 LORENZ - MIKKE_SE	IL 13 5 LORENZ - MIKKELSE	1 31 A MARC	IL 1 35 R MYRU	IL 1 35 R MYRD	IL 1 35 CITY OF GRAND FORK	IL I 35 CITY DF SRAND FORK	S S S RELIE	3 G REITE	2 3 M HENDRICK	2 3 4 HENDRICK	2 3 M HENDRICK	2 3 T ODEGAARD	2 39 J WOLD	2 39 J WOL	2 39 J WOL	ICL 2 17 FRDEDTERT MALTING C	ICL 2 77 FRDEDIERI MALIINS C	ICL 2 77 FROEDTERT MA_IIVS C	ICL 2 77 FROEDIERT MALTING C	ICL 2 77 FRDEDTERT MALTING C	ICL 7 77 FADEDTERT MALTING C
507 711 505 503 SOIL ADMIN CNT TEXT AREA NUM CODPERATO		L 1 5 E WDYE	1 5 E WOYE	1 5 E WOYE	I. AL	R. HINKL	IL I S 3. RISKEDA	1 19 D BROWN - R KENDAL	1 19 0 BROWN - R KENDAL	1 13 D BRJUN - R KENDAL	1 19 V DAWLEY - SCHRADE	1 13 V DAWLEY - SCHRADE	1 19 V DAWLEY - SCHRADE	KA SIL 1 19 3 LORENZ - MIKKELSE	KA SIL 1 19 5 LORENZ - MIKKE_SE	KA SIL 1 19 5 LORENZ - MIKKELSE	1 31 A MARC	IL 1 35 R MYRU	SIL 1 35 R MYRD	E SIL I 35 CITY OF GRAND FORK	SIC 1 30 CITY OF SRAND FORK	Notific C S S S SELLE	TO SETTE	A L 2 3 M HENDRICK	A L 2 3 4 HENDRICK	A L 2 3 M HENDRICK	L 2 3 T OJEGAARJ	L 2 39 J WOLD	2 39 J WOL	L 2 39 J WOL	A SICL 2 17 FRDEDIERT MALTING C	A SICL 2 77 FRDEDIERT MALTING C	A SICL 2 77 FROEDIERT MA_IIV3 C	A SICL 2 77 FROEDTERT MALTING C	A SICL 2 77 FRDEDTERT MALTING C	A SICL ? 77 FADEDTERT MALTING C
SOIL ADMIN CNT SIES TEXT AREA VUM CODPERATO		SVEA L 1 5 E WDYE	SVEA L 1 5 E WOYE	SVEA L 1 5 E WOYE	1 I5 I. AL	R. HINKL	IL I S 3. RISKEDA	1 19 D BROWN - R KENDAL	1 19 0 BROWN - R KENDAL	1 13 D BRJUN - R KENDAL	L 19 V DAWLEY - SCHRADE	L 13 V DAWLEY - SCHRADE	L 19 V DAWLEY - SCHRADE	-TONKA SIL 1 19 3 LORENZ - MIKKELSE	-TONKA SIL 1 19 5 LORENZ - MIKKE_SE	-TONKA SIL 1 19 5 LORENZ - MIKKELSE	1 31 A MARC	SIL 1 35 R MYRU	SIL 1 35 R MYRD	DELLE SIL I 35 CITY OF GRAND FORK	SIL SIL 1 35 CITY OF SRAND FORK	SVEA L 2 3 9 RELIE	SVEA L 2 3 6 REITE	-SVEA L 2 3 M HENDRICK	-SVEA L 2 3 4 HEYDRICK	-SVEA L 2 3 M HENDRICK	RNES L 2 3 T OJEGAARJ	L 2 39 J WOLD	2 39 J WOL	L 2 39 J WOL	TOWKA SICL 2 17 FRDEDTERT MALTING C	IDNKA SICE 2 77 FRDEDIERT MALTING C	TOWKA SICL 2 77 FROEDTERT MA_TING C	TOWKA SICL 2 77 FROEDTERT MALTING C	TONKA SICL 2 77 FRDEDTERT MALTING C	TONKA SICL ? 77 FRDEDTERT MALTING C
SOIL ADMIN CNT SERIES TEXT AREA WUM CODPERATO		ES-SVEA L 1 5 E WDYE	VEA L 1 5 E WOYE	ES-5VEA L 1 5 E WOYE	1 I5 I. AL	R. HINKL	JAN SIL I IS 3. RISKEDA	VES L 1 19 D BROWN - R KENDAL	1 19 0 8304N - R KENDAL	15 BROWN - R KENDAL	ERLY L 19 V DAWLEY - SCHRADE	ERLY L 13 V DAWLEY - SCHRADE	ERLY L 19 V DAWLEY - SCHRADE	SALY-TONKA SIL 1 19 3 LORENZ - MIKKELSE	ERLY-TONKA SIL 1 19 5 LORENZ - MIKKE_SE	PRLY-TONGA SIL 1 19 5 LORENZ - MIKKELSE	A L I 31 A MARC	400N SIL 1 35 R MYRO	NJON SIL 1 35 R MYRD	LADELLE SIL 1 35 CITY OF GRAND FORK	L-LADELLE SIL I 30 CITY DF SRAND FORK	MISSESSIEN L Z S S RELLE MISSESSIEN L S S S RELLE	ALSASVEA L 2 3 G RELIE	ERLY-SVEA L 2 3 M HENDRICK	ERLY-SVEA L 2 3 4 HEVDRICK	ERLY-SVEA L 2 3 M HENDRICK	A-BARNES L 3 T OJEGAARJ	NES L 2 39 J WOLD	NES L 2 39 J W J L	NES L 2 39 J WOL	LER-TOWKA SICL 2 17 FRDEDTERT MALTING C	LER-TONKA SICE 2 77 FRDEDIERT MALTING C	LER-TONKA SICL 2 77 FROEDTERT MA_TING C	LER-TONKA SICL 2 77 FROEDIERT MALTING C	LER-TONKA SICL 2 77 FRDEDTERT MALTING C	LER-TONKA SICL ? 77 FRDEDTERT MALTING C
507 SOIL ADMIN CNT SOIL SERIES TEXT AREA NUM CODPERATO		ARNES-SVEA L 1 5 E WDYE	IS E WOYE	ARNES-SVEA L 1 5 E WOYE	1 I5 I. AL	R. HINKL	INDAN SIL I 15 3. RISKEDA	BARNES L 1 19 D BRUMN - R KENDAL	BARNES L 1 19 D BROWN - R KENDAL	BARNES L 1 19 D BROWN - R KENDAL	HAMERLY L 19 V DAWLEY - SCHRADE	HAMERLY - SCHRADE	HAMERLY L 19 V DAWLEY - SCHRADE	HAMERLY-TONKA SIL 1 19 3 LORENZ - MIKKELSE	HAMERLY-TONKA SIL 1 19 5 LORENZ - MIKKELSE	HAMERLY-TONKA SIL 1 19 5 LORENZ - MIKKELSE	SVEA L 1 31 4 MARC	YNDON SIL I 35 R MYRU	YNJUN SIL 1 35 R MYRD	ELL-LADELLE SIL 1 35 CITY OF GRAND FORK	ZELL-LADELLE SIL I 35 CITY DE SRAND FORK	SARVESTSVEN L S S S RELLE	BARNES-SVEA L S S G RELIE	HAMERLY-SVEA L 2 3 M HENDRICK	HAMERLY-SVEA L 2 3 4 HENDRICK	HAMERLY-SVEA L 2 3 M HENDRICK	SVEA-BARNES L 2 3 T 03EGAAR3	BARNES L 2 39 J WOLD	JARNES L 2 39 J WOL	JARNES L 2 39 J WOL	NILER-IDUKA SICL 2 17 FRDEDIERT MALIING C	NILER-TONKA SICL 2 77 FRDEDIERT MALTING C	NILER-TONKA SICL 2 77 FROEDTERT MALIING C	VILER-IDAKA SICL 2 77 FROEDIERI MALTING C	NILER-TONKA SICL 2 77 FRDEDIERI MALIING C	VILER-TONKA SICL ? 77 FADEDTERT MALTING C
506 507 SOIL ADMIN CNT WERA SOIL SERIES TEXT AREA WUN CODPERATO		55 BARNES-SVEA L 1 5 E WDYE	5 3ARNES-SVEA L 3 5 E WOYE	55 BARNES-SVEA L 1 5 E WOYE	1 I5 I. AL	1 15 R. HINKL	3 MANJAN SIL I IS 3. RISKEDA	JEA BARNES L 19 D BROWN - R KENDAL	DEA BARNES L 1 19 D BROWN - R KENDAL	JARNES L I J D BROWN - R KENDAL	SSA HAMERLY - SCHRADE	JOSA HAMERLY - SCHRADE	DEA HAMERLY L 19 V DAWLEY - SCHRADE	55A HAMERLY-TONKA SIL 1 19 3 LORENZ - MIKKELSE	DEA HAMERLY-TONKA SIL 1 19 5 LORENZ - MIKKELSE	55A HAMERLY-TONKA SIL 1 19 S LORENZ - MIKKELSE	SSB SVEA L 1 31 4 MARC	56 SLYNDON SIL 1 35 R MYRO	56 SLYNJON SIL 1 35 R MYRD	56 ZELL-LADELLE SIL I 35 CITY OF GRAND FORK	36 ZELL-LADELLE SIL I 30 CITY DE SRAND FORK	SOUR SARVES SVEA L 2 3 9 KELLE	ARMES-SVEA L 2 3 G RELIE	558 HAMERLY-SVEA L 2 3 M HENDRICK	JOB HAMERLY-SVEA L 2 3 4 HENDRICK	558 HAMERLY-SVEA L 2 3 M HENDRICK	558 SVEA-BARNES L 2 3 T OJEGAARJ	558 3ARNES L 2 39 J WOLD	SSB SARNES L 2 39 J WOL	55B 3ARNES L 2 39 J WOL	36 AVILER-TOWKA SICL 2 17 FROEDTERT MALTING C	56 AVILER-TONKA SICL 2 77 FRDEDIERI MALTING C	56 AVILER-TOWKA SICL 2 77 FROEDTERT MA_TING C	56 AVILER-IDAKA SICL 2 77 FROEDIERI MALTINS C	36 ANTLER-TONKA SICL 2 77 FRDEDTERT MALTING C	56 ANTLER-TONKA SICL ? 77 FRDEDTERT MALTINS C
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### RATING SYSTEM 1=EXCELLENT 3=GOOD 5=FAIR 7=POOR 9=VERY POOR

552 FOL HT (Height at end of season) 553 FOL WID (Crown width at end of season)	. 525 WDC (Weed competition)	627 ADPT (Adaptation to site)	713 STAT (Status: active, inactive, terminated)	
Legend: 505 CNT NUM (FIPS County Code) 502 FIELD PLNT NO (Field planting number: state, year planted, sequence)	517 PURP (Purpose)	599 YR RC (Year of record)	518 NUM PLTS (Number of plants)	532 SUR PCT (Percent survival)

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05 508 VI	UM COOPERATO	3 V HOCHHALTE	3 N HOCHHALTE	1 N KRINK	1 V KRIVK	1 N KRINK	1 F FISCHE	1 F FISCHER	5 KILLDEER PARK BJAR	5 KILLDEER PARK BOAR	5 J WERR	5 A SKACHENK	5 A SKACHENK	5 G KULIS	3 J NOL	3 J NDL	3 3 200	HRMANTRAU	7 A EHRMANTRAU	1 F DILS	1 F DILS	1 F DILS	1 S NIELSE	1 S NIELSE	1 6 GUSSE	1 P GULLICKSO	1 P GULLICKSO	D5 V MARMO	05 V MARMO	05 V MARMO	NS E JORGENSO	5 E JORGENSO	1 U. HOISTA	1 D. WUCHERPFEUNI	1 R. 3ERG	1 N. KRINKE	1 R. SJRENSJ
505 505 N CVI	NUM COOPERATO	33 V HOCHHALTE	33 N HOCHHALTE	11 N KRINK	11 N KRIVK	II N KRINK	11 F FISCHE	11 F FISCHER	25 KILLDEER PARK BOAR	25 KILLDEER PARK BOAR	25 J WERR	25 A SKACHENK	25 A SKACHENK	25 G KULIS	33 J NOL	33 J NDL	33 3 200	7 A EHRMANTRAU	37 A EHRMANTRAU	41 F DILS	41 F DILS	41 F DILS	41 S NIELSE	41 S NIELSE	41 6 GUSSE	41 P GULLICKSO	41 P GULLICKSO	105 V MARMO	105 V MARMO	105 V MARMO	105 T JORGENSO	105 E JORGENSO	81 U. HOISTA	81 D. WUCHERPFENNI	81 R. 3ERG	11 N. KRINKE	41 R. SJRENSJ
711 505 503 ADMIN CNI	AREA NUM COOPERATO	33 V HOCHHALTE	33 N HOCHHALTE	11 N KRINK	11 N KRIVK	II N KRINK	11 F FISCHE	11 F FISCHER	25 KILLDEER PARK BOAR	25 KILLDEER PARK BOAR	5 25 J WERR	25 A SKACHENK	25 A SKACHENK	25 G KULIS	33 J NOL	33 J NDL	33 3 200	37 A EHRMANTRAU	37 A EHRMANTRAU	5 41 F DILS	5 41 F DILS	o 41 F DILS	41 S NIELSE	41 S NIELSE	41 6 GUSSE	41 P GULLICKSO	41 P GULLICKSO	105 V MARMO	105 V MARMO	105 V MARMO	105 T JORGENSO	105 E JORGENSO	81 U. HOISTA	81 D. WUCHERPFENNI	81 R. 3ERG	11 N. KRINKE	41 R. SJRENSJ
711 505 503 ADMIN CNI	EXT AREA NUM COOPERATO	33 V HOCHHALTE	33 N HOCHHALTE	11 N KRINK	5 11 V KRIVK	5 II N KRINK	L 5 11 F FISCHE	L 5 11 F FISCHER	5 25 KILLDEER PARK BOAR	5 25 KILLDEER PARK BOAR	ICL 5 25 J WERR	IL 5 25 A SKACHENK	IL 5 25 A SKACHENK	SL 5 25 G KULIS	IL 5 33 J NOL	IL 5 33 J NDL	IL 5 33 3 200	37 A EHRMANTRAU	SL 5 37 A EHRMANTRAU	ILL 5 41 F DILS	11LL 5 41 F DILS	ILL 5 41 F DILS	IL 5 41 S NIELSE	IL 5 41 S NIELSE	IL 5 41 6 GUSSE	IL 5 41 P GULLICKSO	1L 5 41 P GULLICKSO	5 105 V MARMO	5 105 V MARMO	S 105 V MARMO	5 105 E JORGENSO	5 105 E JORGENSO	81 U. HOISTA	81 D. WUCHERPFENNI	81 R. 3ERG	11 N. KRINKE	41 R. SJRENSJ
03 711 505 503 51L ADMIN CNI	EXT AREA NUM COOPERATO	33 V HOCHHALTE	33 N HOCHHALTE	11 N KRINK	5 11 V KRIVK	5 II N KRINK	L 5 11 F FISCHE	L 5 11 F FISCHER	5 25 KILLDEER PARK BOAR	5 25 KILLDEER PARK BOAR	ICL 5 25 J WERR	IL 5 25 A SKACHENK	IL 5 25 A SKACHENK	L FSL 5 25 G KULIS	IL 5 33 J NOL	IL 5 33 J NDL	IL 5 33 3 200	SL 5 37 A EHRMANTRAU	FSL 5 37 A EHRMANTRAU	DASILL 5 41 F DILS	D A SILL 5 41 F DILS	DASILL 5 41 F DILS	IL 5 41 S NIELSE	IL 5 41 S NIELSE	IL 5 41 6 GUSSE	IL 5 41 P GULLICKSO	1L 5 41 P GULLICKSO	5 105 V MARMO	5 105 V MARMO	S 105 V MARMO	5 105 E JORGENSO	5 105 E JORGENSO	81 U. HOISTA	81 D. WUCHERPFENNI	81 R. 3ERG	11 N. KRINKE	41 R. SJRENSJ
03 711 505 503 51L ADMIN CNI	EXT AREA NUM COOPERATO	33 V HOCHHALTE	33 N HOCHHALTE	11 N KRINK	5 11 V KRIVK	5 II N KRINK	L 5 11 F FISCHE	L 5 11 F FISCHER	5 25 KILLDEER PARK BOAR	5 25 KILLDEER PARK BOAR	GF SICL 5 25 J WERR	IL 5 25 A SKACHENK	IL 5 25 A SKACHENK	SL 5 25 G KULIS	IL 5 33 J NOL	IL 5 33 J NDL	IL 5 33 3 200	SL 5 37 A EHRMANTRAU	FSL 5 37 A EHRMANTRAU	FIELD A SILL 5 41 F DILS	A SILL 5 41 F DILS	FIELD A SILL 5 41 F DILS	IL 5 41 S NIELSE	IL 5 41 S NIELSE	IL 5 41 6 GUSSE	IL 5 41 P GULLICKSO	1L 5 41 P GULLICKSO	5 105 V MARMO	5 105 V MARMO	L S 105 V MARMO	L 5 105 E JORGENSO	L 5 105 E JORGENSO	81 U. HOISTA	81 D. WUCHERPFENNI	81 R. 3ERG	11 N. KRINKE	41 R. SJRENSJ
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07 503 711 505 503 SOIL ADMINIONT	OIL SERIES TEXT AREA NUM COOPERATO	ARNES 4 .33 N HOCHHALTE	ARNES 4 33 N HOCHHALTE	RNEGARD L 5 11 N KRINK	RNEGAR) L 5 11 N KRINK	RNEJARD L 5 11 N KRINK	EBAR SL 5 11 F FISCHE	EBAR SL 5 11 F FISCHER	5 STRAW L 5 25 KILLDEER PARK BJAR	5 STRAJ L 5 25 KILLDEER PARK BJAR	ELFIELD-SAVAGE SICL 5 25 J WERR	ARLAND SIL 5 25 A SKACHENK	ARLAND SIL 5 25 A SKACHENK	EBAR-PARSHALL FSL 5 25 G KULIS	IL 5 33 J NOL	IL 5 33 J NDL	SIL 5 33 3 200	ELVA FSL 5 37 A EHRMANTRAU	ELVA FSL 5 37 A EHRMANTRAU	HAMA BELFIELD A SILL 5 41 F DILS	HAMA BELFIELD A SILL 5 41 F DILS	HAMA BELFIELD A SILL 5 41 F DILS	HAMA SIL 5 41 S NIELSE	AMA SIL 5 41 S NIELSE	ELFIEL) SIL 5 41 6 GUSSE	ELFIEL) SIL 5 41 P GULLICKSO	ELFIEL) SIL 5 41 P GULLICKSO	AX L 5 105 V MARMO	AX 5 105 V MARMO	AX L S 105 V MARMO	LLIAMS L 5 105 5 JORGENSO	ILLIAMS L 5 105 E JORGENSO	81 U. HOISTA	81 D. WUCHERPFENNI	81 R. 3ERG	11 N. KRINKE	ORTIN 7 41 R. SJRENSJ
06 507 501 505 503 509 711 505 503 500 501 501 501 501 501 501 501 501 501	LRA SOIL SERIES TEXT AREA NUM COOPERATO	55B BARNES 4 .33 N HOCHHALTE	553 JARNES 4 35 N HOCHHALTE	04 ARNEGARD L 5 11 N KRINK	5 11 N KRINK	54 ARMEJARD L 5 11 V KRINK	380 VEBAR SL 5 11 F FISCHE	5 11 F FISCHER	54 75 STRAW L 5 25 KILLDEER PARK BOAR	54 75 STRAW L 5 25 KILLDEER PARK BOAR	34 SELFIELD-SAVAGE SICL 5 25 J WERR	5 25 A SKACHENK SIL 5 25 A SKACHENK	54 FARLAND SIL 5 25 A SKACHENK	54 VEBAR-PARSHALL FSL 5 25 G KULIS	34 SIL 5 33 J NOL	54 SIL 5 33 J NDL	54 SIL 5 33 3 200	54 VELVA FSL 5 37 A EHRMANTRAU	04 VELVA FSL 5 37 A EHRMANTRAU	54 CHAMA BELFIELD A SILL 5 41 F DILS	54 CHAMA BELFIELD A SILL 5 41 F DILS	54 CHAMA BELFIELD A SILL 5 41 F DILS	54 CHAMA SIL 5 41 S NIELSE	04 CHAMA SIL 5 41 S NIELSE	34 BELFIEL) SIL 5 41 6 GUSSE	54 BELFIEL) SIL 5 41 P GULLICKSO	54 3ELFIEL) SIL 5 41 P GULLICKSO	534 MAX L 5 105 V MARMO	534 MAX L 5 105 V MARMO	534 44X L 5 105 V MARMO	WILLIAMS L 5 105 E JORGENSO	of WILLIAMS L 5 105 E JORGENSO	81 U. HOISTA	55 6 81 D. WUCHERPFEVNI	81 R. 3ERG	54 TALLY 7 11 N. KRINKE	54 10RT.IN 7 41 R. SORENSO
04 506 507 501 505 503 SOL 404IN CNI	T MERA SOIL SERIES TEXT AREA NUM COOPERATO	0.0558 BARNES 4 .33 N HOCHHALTE	0.553 JARNES 4 95 N HOCHHALTE	) 054 ARNESARD L 5 11 N KRINK	) (154 ARNEGAR) L 5 11 N KRINK	) (154 ARNESAR) L 5 II V KRINK	OSBO VEBAR SL S 11 F FISCHE	) 0580 VEBAR SL 5 11 F FISCHER	0.54 75 STRA₩ L 5 25 KILLDEER PARK BJAR	) J34 75 STRA# L 5 25 KILLDEER PARK BJAR	) 034 SELFIELD-SAVAGE SICL 5 25 J WERR	) 054 FARLAND SIL 5 25 A SKACHENK	) 054 FARLAND SIL 5 25 A SKACHENK	) 054 VEBAR-PARSHALL FSL 5 25 G KULIS	) 054 SIL 5 33 J NOL	0.54 SIL 5.33 J. NDL	) 054 SIL 5 33 2 203	) 054 VELVA FSL 5 37 A EHRMANTRAU	) 0.54 VELVA FSL 5 37 A EHRMANTRAU	O 54 CHAMA BELFIELD A SILL 5 41 F DILS	) 054 CHAMA BELFIELD A SILL 5 41 F DILS	O 054 CHAMA BELFIELD A SILL 5 41 F DILS	) 054 CHAMA SIL 5 41 S NIELSE	0 654 CHAMA SIL 5 41 S NIELSE	O 004 BELFIEL) SIL 5 41 6 GUSSE	D 054 BELFIELD SIL 5 41 P GULLICKSO	0 054 3ELFIELD SIL 5 41 P GULLICKSO	0 0534 MAX L 5 105 V MARMO	0 0534 MAX L 5 105 V MARMO	D 0534 44X L 5 105 V MA9MO	O 053 WILLIAMS L 5 105 E JORGENSO	O 053 WILLIAMS L 5 105 E JORGENSO	0 81 U• 401STA	0 055 5 UUCHERPFEVNI	D 055 S 81 R 3 ERG	054 TALLY 7 11 N. KRINKE	J 054 10RTJN 7 41 R. SJRENSJ
4 506 507 501 505 503 501 506 507 SOL ADMINISTR	MERA SOIL SERIES TEXT AREA NUM COOPERATO	0.0558 BARNES 4 .33 N HOCHHALTE	0.553 JARNES 4 95 N HOCHHALTE	) 054 ARNESARD L 5 11 N KRINK	) (154 ARNEGAR) L 5 11 N KRINK	) (154 ARNESAR) L 5 II V KRINK	OSBO VEBAR SL S 11 F FISCHE	) 0580 VEBAR SL 5 11 F FISCHER	0.54 75 STRA₩ L 5 25 KILLDEER PARK BJAR	) J34 75 STRA# L 5 25 KILLDEER PARK BJAR	) 034 SELFIELD-SAVAGE SICL 5 25 J WERR	) 054 FARLAND SIL 5 25 A SKACHENK	) 054 FARLAND SIL 5 25 A SKACHENK	) 054 VEBAR-PARSHALL FSL 5 25 G KULIS	) 054 SIL 5 33 J NOL	0.54 SIL 5.33 J. NDL	) 054 SIL 5 33 2 203	054 VELVA FSL 5 37 A EHRMANTRAU	) 0.54 VELVA FSL 5 37 A EHRMANTRAU	O 54 CHAMA BELFIELD A SILL 5 41 F DILS	) 054 CHAMA BELFIELD A SILL 5 41 F DILS	O 054 CHAMA BELFIELD A SILL 5 41 F DILS	) 054 CHAMA SIL 5 41 S NIELSE	0 654 CHAMA SIL 5 41 S NIELSE	O 004 BELFIEL) SIL 5 41 6 GUSSE	D 054 BELFIELD SIL 5 41 P GULLICKSO	0 054 3ELFIELD SIL 5 41 P GULLICKSO	0 0534 MAX L 5 105 V MARMO	0 0534 MAX L 5 105 V MARMO	D 0534 44X L 5 105 V MA9MO	O 053 WILLIAMS L 5 105 E JORGENSO	O 053 WILLIAMS L 5 105 E JORGENSO	0 81 U• 401STA	0 055 5 UUCHERPFEVNI	D 055 S 81 R 3 ERG	O 054 TALLY 7 11 N. KRINKE	J 054 10RTJN 7 41 R. SJRENSJ

## A SULMARY OF \*CARDAN\* SREEN ASH FIELD PLANTINGS IN NORTH DAKOTA 11/09/1987

3 A T	- 39 <b>-</b>	
71		3 6
627 A3P		
525 WDC	L         D	) LO
553 FOL #10	000 11111110 0 4 0 8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	• •
552 FOL HT	4 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	•
532 SUR PCT	80 100 100 100 100 100 100 100 1	
518 NUM PLTS	3 3 2 5 0 0 5 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•
693 YR RC	***	ω ω
517 PURP		10
502 FIELD PLNT NO	VDB2001 VVDB2001 VVDB2001 VVDB30001 VVDB30003 VVDB30010	08201
001 ACCN NUMBER F	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	69226
509 711 505 533 S31_ 434 CNT TEXT AREA WUM C30PERATOR	L	5 105 V MARMO
004 006 507 ST MLRA SOIL SERIES	VD 055 JARNES-SVEA ND 055 BARNES-SVEA ND 055 BARNES-SVEA ND 055 BARNES-SVEA ND 055A HAMERLY-TONKA ND 055A HAMERLY-TONKA ND 055A HAMERLY-TONKA ND 055A HAMERLY ND 055A BARNES ND 055B BARNES-SVEA	0 053A MA

RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR /=P00R 9=VERY P00R

Legend: 505 CNT NUM (FIPS County Code)	502 FIELD PLNT NO (Field planting number: state, year planted, sequence)	SI7 PURP (Purpose)	599 YR RC (Year of record)	518 NUM PLTS (Number of plants)	532 SUR PCT (Percent survival)	552 FOL HT (Height at end of season)	553 FOL WID (Crown width at end of season)	525 WDC (Weed competition)	627 ADPT (Adaptation to site)	713 STAT (Status: active, inactive, terminated)
) MUN	D PLNT	(Pur	C (Ye	PLTS	PCT (	H) IH	MID (	(Weed	(Ada	(Sta
end:	FIEL	PURP	YR R	NUM	SUR	FOL 1	FOL 1	WDC	ADPT	STAT
Leg 502	502	517	599	518	532	552	553	525	627	713

## A SJMMARY OF \*JAHE\* HACKBERRY FIELD PLANTINGS IN NORTH DAKOTA 11/09/1387

40	504	0 0 c	5117	0.9 7.1	ل رَ	0	0		517	66	18	32 p	2 5	3 5	25 527	713
				( A)	トフローケ	ACC	N	C		YR N	N.W. S	UR F	OL F	76		
	15	MLRA	SOIL SERIES	EXT AR	$\supset$	2		0 N L	PURP	U	LIS	CT H	3	3	DC A 3P	I STAT
* * *						- 1	;	1	:							
4	22				J I . ALM	~	382 ND	7025	2 2 2	$\infty$					9	
*	ON	2			J R. HINK	~	382 ND	4025	NBR	$\infty$	210				~	
*	ON	S	A	SIL	5 8. RISKE	~	382 ND	4026	NBR		7.1	11	1.2	• <del>)</del>		
*	ON	S	>	٦	1 W MARC	~	382 ND	5003	Z.	*85°	89	-			-	⋖
*	ON	iO	ARG	-	7 K FLEISCHAU	-	382 VD	5008	7		66					<b>-</b>
4	Q v	S	AR	_	77 K FLEI	$\sim$	382 ND	5008	7	8	9.6	7	1.3		5	<b>-</b>
41	ON.	2	ARSH	S	3 A C 2 R	$\sim$	382 ND	6011	Z	*86	100	0			5	Ø
4	ON	054	YA	SIL	29 N BEITELSPACHE	~	932 ND	012	Z	$\infty$	5	95		• 0	3	⋖
41	QN	5	RYAN	$\overline{}$	29 N BEITELSPAC	_	382 ND	5016	IND	$\infty$	5.0	2			~	A
4	ND.	2	ILLIA1	١	S5 L GULLICKS	~	382 ND	5017	ONI	*85	$\sim$	S	2.0		2	
*	QN	S	ILLI	١	55 L GULLICKSO	~	382 ND	5017	ONI	$\infty$	125	_			~	3 A
41	CK	5	5 STRA	١	25 KILLUEER PARK 334	7 4 7	382 ND	5010	ONI	$\otimes$	4 0	2		• 2	~	
•	O N	2	5 5	٦	25 KILLDEER PARK 334	47	382 ND	5010	ONI	$\infty$	4					<b>—</b>
*	20	5	ARLAN	SIL	J 25 A SKACHENKO	47	6382 ND	5014	ONIM	*86	210	0	•		~	⋖
41	Q N		FARLAND		25 A SKACHENK	$\sim$	382 ND	5015	ONI	$\infty$	75	0	•	• 1	~	A
4	Or.		BAR-P	FSL	25 G KULIS	7	382 VD	5017	ONI	$\alpha$ 0	4 0	2			3	
*	QN	:0		٦	100 E JORGENSO	$\sim$	382 ND	014	ONI	*85	2.1	80	1 . 4		~	3 A
	ND	053	A	د	105 € JJRG	$\sim$	382 ND	5014	ONI	$\infty$	21	0	•	8	7	
4	CN				81 U. HOISTA	~	982 ND	0011	NBR	$\mathfrak{S}$	50		•		~	~
*	27	2			81 J. JJCHER	1	382 VD	4003	BR	$\infty$	5			• 2	3	
41	Q N	0.55			81 R. 3ERG	~	382 ND	4006	NBR	8	485			9 •	-	€
41	٩				11 N. KRINK	~	982 VD	2033	Θ	*81	~					
	Q.V.	0.54	MORTON		41 3. SJRE	_	982 ND	7048	N		25	4	•	1.2	5	2

Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
599 YR RC (Year of record)
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552 FOL HT (Height at end of season)
553 FOL WID (Crown width at end of season)
553 WDC (Weed competition)
525 WDC (Weed competition)
527 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

FAIR 7=POOR 3=VERY POOR

Ω H

RATING SYSTEM 1=EXCELLENT 5=3000

## A SUMMARY OF NU-1873 (9011850) HONEYLOGUST IN WORTH DAKOTA 11/12/1987

STATE   STAT	7 713	PI STAT		3 A		-											O A			1 A			3 T	A	3 T	<b>-</b>	V	3 A	3 A
4 9.06         507         51 1         503         53.3         601         67.0         51 7         69.1         78         N.14         SOIL STIED         78         N.14         50.1         60.1         60.1         78         N.14         50.1         60.1         60.1         78         N.14         N.14         10.0         10.0         10.0         10.0         10.0         N.14         N.14         N.14         10.0         10.0         10.0         N.14         N.14         N.14         10.0         10.0         10.0         N.14         N	5.5	A J	~	.0		.0	~	.0	2	2	10	~		2		_	•	10	~	_		_	_	_	10	~	•	10	_
4    50   50   7	2	0															()	4,						· · ·		7,	٠,	ι, ,	
9.06         50.7         50.9         71.1         50.3         3.3         ACCN         FIELD         YR         NJH         SOIL         ACR         FIELD         YR         NJH         SOIL         ACR         FIELD         YR         NJH         SOIL         ACR         FIELD         YR         NJH         SOIL         FIELD         ACR         FIELD         YR         NJH         SOIL         SOIL         SOIL         ACR         FIELD         YR         NJH         SOIL         SOIL         RA         ACR         ACR         PILL         ACR         ACR <t< td=""><td>0</td><td>-</td><td>•</td><td>•</td><td></td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td></td><td></td><td></td><td></td><td>•</td><td>•</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>•</td></t<>	0	-	•	•			•	•	•	•	•	•	•	•					•	•									•
ALTA   SOIL SCAILES   SOIL SOIL SOIL SOIL SOIL SOIL SOIL SOIL	5	-	•	•		•	•	•	•				•	•	•	•	•		•	•		•	•		•				•
4 DOG         507         711         50.5         50.3         60.1         78         N.1           4 LQA         SOIL SCRIES         IEXT AREA NAY COOPERATOR         NATHER         PACCA         FIELD         YR NJM           156         ZELL-LAJELLE         SIC         2 TA         CITY OF GRAND         FORGS         NOBSOS MIND         865         PR           56         ZELL-LAJELLE         SIC         2 TA         CITLSCHAUG         9011850         NOBSOS MIND         865         PR           56         FARSO         SIC         2 TA         CILLSCHAUG         9011850         NOBSOS MIND         865         PR           56         GARDEMA-AASTAD         L         2 TA         CELLSCHAUG         9011850         NOBSOS MIND         865         BR           56         GARDEMA-AASTAD         L         2 SIC         2 TA         CEAPENTER         9011850         NOBSOS MIND         865         66           56         GARDINA-AGENA         SIL         2 SIL         1 HOMESS         9011850         NOBSOS MIND         865         66           56         GARDINA-AGENA         SIL         2 SIL         1 HOMESS         9011850         NOBSOS MIND         865         66	5 7	C																				0	0	0	3		0		
SOTE	1 8 E	-	8 0	8 0	66	66	99	50	44	50	99	44	30	3.0	98	50	98	5.0	6.0	9	2.0	14	20	14	5.0	50	25	25	25
4 506         507         511         505         533         601         502         517         4 CCN         FIELD         517         6 CCN         6 CCN         FIELD         517         6 CCN         6 CCN         FIELD         518	0 cc		$\alpha$	$\infty$			* 8p		*85	*85	*86	*86	*85	* 85	*85	± 85	*86	*86	*85	*85									
4 506         507         711         505         50.3         ACCN         FLELD           4 L2A         SOIL SERIES         TEXT AREA         VJA         COOPERATOR         ACCN         FLELD           95.6         ZELL-LAJELLE         SIL         1         35         CITY OF GRAND         FORMS         9011950         NOB503           95.6         ZELL-LAJELLE         SIL         1         35         CITY OF GRAND         FORMS         9011950         NOB503           95.6         ZELL-LAJELLE         SIL         1         35         CITY OF GRAND         9011950         NOB503           95.6         FARGO         SIC         2         77         K FLLISCHAUR         9011950         NOB501           95.8         FARSONA-AASTAD         L         2         81         K CARPENTER         9011950         NOB501           95.8         FORMANA-AASTAD         L         2         81         H RANE         9011950         NOB501           95.8         FORMANA-AASTAD         L         2         81         H RANE         9011950         NOB501           95.8         GRAPENA-SLYNDON         SIL         2         81         H RANE         9011950		ω Ν	7	7	N	Z	Z	Z	I	Z	I	Z	Z	N	N	N	Z	Z	Z	Z	N	I	Z	Z	7	Z	N	Z	N
4 506         507         711         505         50.3         ACCN         FIE           VL2A         S01L         A)Y         CNI         CNI         ACCN         FIE           VL2A         S01L         A)Y         CND         CND         CND         FIE           056         ZELL-LAJELLE         S1L         1         35         CITY OF GRANJ         FONDS         NDB           056         ZELL-LAJELLE         S1L         1         35         CITY OF GRANJ         FONDS         NDB           056         ZELL-LAJELLE         S1L         1         35         CITY OF GRANJ         FONDS         NDB           056         ZELL-LAJELLE         S1L         2         77         K LEISCHAUR         9011850         NDB           055         FARSO         L         2         81         K CARPENTER         9011850         NDB           055         FORANIANA-SLYNDON         S1L         2         81         K CARPENTER         9011850         NDB           055         GARDINA-SLYNDON         S1L         2         81         H ENKE         9011850         NDB           055         GARNAN-AASINA         S1L         B ARNES		7	0.3	03	0 0	0 0	02	02	0.1	0.2	02	0.1	0.1	0 1	02	02	02	02	0 0	0 0	0.1	0.1	0.1	0.1	0.1	0.1	02	0.1	0.2
4 506         507         711         505         50.3         ACCN           MLRA SOIL SERIES         TEXT AREA NUM COOPERATOR         VJHBER           056         ZELL-LAJELLE         SIL         1         35         CITY OF GRANJ FORKS         901185           056         ZELL-LAJELLE         SIL         1         35         CITY OF GRANJ FORKS         901185           056         FARGO         SIC         2         77         K FLEISCHAUR         901185           056         FARGO         SIC         2         77         K FLEISCHAUR         901185           055B         FARGO         SIC         2         77         K FLEISCHAUR         901185           055B         FARONANA-ARSTAD         L         2         91         L BAASH         901185           055B         FORMANA-ARSTAD         L         2         91         L BAASH         901185           055B         GARDENA-ASTANDON         SIL         2         81         H RANKE         901185           055B         GARDENA-ASTANDON         SIL         2         81         H GANES         901185           055B         GARDENA-SLYNDON         SIL         2         81	02 1E	7	08	08	0.8	08	08	0.8	08	08	08	08	03	0.8	08	08	0.8	08	0.8	08	0.8	08	0.8	0.8	0.8	08	0.8	08	0.8
4         506         507         509         711         505         503           MLRA         SOIL SERIES         TEXT AREA NUM COOPERATOR         NJ           056         ZELL-LAJELLE         SIL         1         35         CITY OF GRAND         90           056         ZELL-LAJELLE         SIL         1         35         CITY OF GRAND         90           056         FARSO         SIC         2         77         K FLEISCHAUR         90           056         FARSO         SIC         2         77         K FLEISCHAUR         90           056         FARSO         L         2         91         RASAH         90           058         FARNANA-AASTAD         L         2         81         I RASH         90           056         GARDENA-GLYNDON         SIL         2         81         I HONES         90           056         GARDENA-GLYNDON         SIL         2         81         I HONES         90           056         GARDENA-CALYNDON         SIL         2         81         I HONE         90           056         GARDENA-CALYNDON         SIL         2         81         I HONE         90		33 FE	195	185	185	185	185	185	185	185	185	195	185	195	185	185	185	185	185	185	195	185	185	185	185	185	185	185	185
4         506         507         711         505         503           4L2A         SOIL A34         CNI         501L A34         CNI         501L A34         CNI           956         ZELL-LAJELE         SIL         1         35         CITY OF GRAVD         F03K           956         ZELL-LAJELE         SIL         1         35         CITY OF GRAVD         F03K           956         FARSO         SIC         2         77         K FLEISCHAUR         F03K           956         FARSO         SIC         2         77         K FLEISCHAUR         F03K           958         GARDENA-CALYNDON         SIL         2         81         K CARPENIER         F05K           958         GARDENA-AASTAD         L         2         81         H HOBNES         F05K           958         GARDENA-AASTAD         L         2         81         H HOBNES         F05K           958         GARDENA-AASTAD         L         2         81         H HONES         F05K           958         GARDENA-AASTAD         L         2         81         H HONE         F05K           958         GARDENES-SVEA         SIL         4 <t< td=""><td>0</td><td><math>\neg</math></td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>ပ</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></t<>	0	$\neg$	0	0	0	0	0	0	ပ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4 506 507  4LRA SOIL SERIES  056 ZELL-LAJELLE 056 FARSO 056 FARSO 056 FARSO 056 FARSO 056 FARSO 056 GARJENA-SLYNDO 0558 GARJENA-SLYNDO 0558 GARJENA-SLYNDO 0558 GARJENA-SLYNDO 0558 BARJENA-SLYNDO 0558 BARNES-SVEA 0558 BARNES-SVEA 0558 BARNES-SVEA 0558 BARNES	99 711 505 53 OIL A34 CNT	EXT AREA NUM COOPERATO	IL 1 35 CITY OF GRAVD FORK	IL 1 35 CITY OF GRAND FORK	IC 2 77 K FLEISCHAUR	IC 2 77 4 FLEISCHAU	IL 2 81 K CARPENTE	2 91 L BRASH	IL 2 BI T HOGNES	2 81 L BRASH	IL 2 91 K CARPENTE	IL 2 BI T HOSNESS	IL 4 65 H HENKE	ANTH 66 4 LI	1038 A 86 P	93 V HOCHHALTE	93 K SCOTT	4 93 N HOCHHALTE	5 11 F FISCHER	5 11 F FISCHE	L 5 33 3 200K	L 5 33 J NOL	L 5 33 3 200	L 5 33 J NJL	L 5 37 A EHRMANTRA	L 5 37 A EHRMANTRA	L 5 41 P GJLLICKSO	L 5 41 G GUSSEY	L 5 41 P GULLICKSO
*	04 506 5	T MERA SOIL SERIE	056 ZELL-LAJELL	056 ZELL-LAJELL	056 FARSO	056 FARGO	0558 GARDENA-SLYNDO	0558 FURMAN-AASTAD	056 SARJENA-3LYNDO	0558 FORMAN-MASTA	0558 GARDENA-3LYNDO	056 GARDENA-SLYNDO	US4 MORION	054 YORTON	055B BARNES-SVE	0558 BARVES	0558 BARNES-SVE	USSB BARVE	058D VEBA	058D VEBA	0.54	0.5	0.5	0.5	054 VELV	054 VELV	054 BELFIEL	054 BELFIEL	054 BELFIE-
		*																											

RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=P00R 9=VERY P00R

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553 FOL WID (Crown width at end of season)
553 WDC (Weed competition)
627 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

# A SJAMARY OF NJ-523 (477392) AMJR MAPLE FIELD PLANTINGS IN NORTH DAKOTA 11/20/1987

904         506         001         502         517         690         518         522         552 <th>713</th> <th>STAT</th> <th><u></u></th> <th>_</th> <th>_</th> <th><b>-</b></th> <th>A</th> <th>A</th> <th>A</th> <th>٨</th> <th>A</th> <th>A</th> <th>A</th> <th>A</th>	713	STAT	<u></u>	_	_	<b>-</b>	A	A	A	٨	A	A	A	A
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RATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=P00R 9=VERY P00R

Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Rield planting number: state, year planted, sequence)
517 PURP (Purpose)
518 NUM PLTS (Number of plants)
518 NUM PLTS (Number of plants)
525 FOL HT (Height at end of season)
552 FOL HT (Height at end of season)
553 FOL WID (Crown width at end of season)
553 FOL WID (Stown width at end of season)
513 STAT (Status: active, inactive, terminated)

A SJ4MARY JE VJ-14 HARBIN PEAR (PYRUS JSSURIENSIS) FIELJ PLANTINGS IN NORTH DAKUTA 11/09/1987

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PATING SYSTEM 1=EXCELLENT 3=6000 5=FAIR 7=P30R 9=VERY P033

Legend:
505 CNT NUM (FIPS County Code)
502 FIELD PLNT NO (Field planting number: state, year planted, sequence)
517 PURP (Purpose)
599 TR RC (Year of record)
518 NUM PLTS (Number of plants)
532 SUR PCT (Percent survival)
532 SUR PCT (Percent survival)
552 FOL HT (Height at end of season)
553 FOL WID (Crown width at end of season)
553 WDC (Weed competition)
627 ADPT (Adaptation to site)
713 STAT (Status: active, inactive, terminated)

### Long Range Plan for Field Plantings

Species: Prunus padus var. commutata Dipp.

Common name: European birdcherry, mayday.

Accession number: SD-131, 6073T.

Purpose of field plantings: Evaluated this for use as a medium tree component of multiple row field and farmstead shelterbelts, single row field windbreaks, wildlife plantings and recreational area developments. Provides food and nesting sites for song birds and other wildlife. Non-suckering habit should be advantageous as a substitute for chokecherry.

Literature review and background information: Mayday is native to Europe and Asia. This shrubby, rounded tree may reach a height of 30 feet. Nonpersistant fruit is small, black, about 1/4 inch across, ripening in July. Branches are low and ascending. One of the first trees to leaf out in the spring. Black knot disease is considered a limiting factor for the species, especially in Minnesota. Root stocks are compatible with chokecherry scion wood. It is hardy in the Dakotas and is non-suckering.

Seed of SD-131 was collected in 1964 from one or more trees on the Oscar Hobbie farm three miles south of the Brookings County line in Moody County near Flandreau, South Dakota. This 1952 planting was established with stock from the Gurney Nursery, Yankton, South Dakota. This and other similar plantings in South Dakota were thought to trace to early introductions by J. L. Budd, Iowa State College, from eastern Siberia via the Imperial Botanical Gardens of Russia. It has performed well in Field Evaluation Plantings in North Dakota, South Dakota and Minnesota.

Duration of field plantings: 10 years.

Standard of comparison: common chokecherry.

Approximate size of field plantings: Minimum of 25 trees per entry.

Location of field plantings: All MLRAS in North Dakota, South Dakota and Minnesota. Selected sites in Iowa, Wisconsin, Nebraska, Montana, Kansas and Wyoming.

<u>Site selection</u>: Recommended for planting on the soils in windbreak suitability groups 1-6. Performs best on moist, moderately well drained to well drained clay loams or sandy soils.

<u>Evaluations</u>: Complete evaluations as required by PMS on Form SCS-ECS-10, Evaluation of Woody Field Plantings.

<u>Summary results</u>: Results will be summarized when trials are complete.

### Long Range Plan for Field Plantings

Species: Helianthus maximiliani Shrad.

Common name: maximilian sunflower.

Accession number: ND-3959, 35964T.

Purpose of field plantings: Evaluate this selection for use in wildlife habitat plantings, range seedings, surface mine reclamation or beautification of transportation corridors and recreational area developments. Stiff upright stems may have potential as vegetative wind barriers. A highly palatable and nutritious livestock forage. Seeds are heavily utilized by birds and other wildlife.

Literature review and background information: Maximilian sunflower is a native, perennial, warm season forb. It grows upright singly or in tight colonies, spreading by seed and heavy rootstalks. Stem heights reach 3-6 feet with conspicuous yellow flower clusters arising on short flower stalks from the leaf axils. Flowers may be present from July through September. It is found in the plains from Saskatchewan and Manitoba south to Missouri and Texas and in some eastern states. Although more abundant in eastern Dakotas than western, it is found along streams, near springs and wet areas in the west. There are approximately 225,000 seeds/pound.

The origin of this accession is from native sites in Grant, LaMoure and Cavalier Counties, North Dakota; Marshall County, South Dakota and Big Stone County, Minnesota. ND-3959 is a composite of five accessions selected on the basis of four years favorable performance in comparison to 52 other accessions from the Dakotas and Minnesota. Criteria for selections included maturity, plant size, vigor, leafiness, number of stems and susceptibility to sunflower rust. Flowering and maturity averages 2 weeks earlier than selections from southern and central South Dakota. Height is variable but may exceed 4.5 feet under optimum conditions or cultivations.

Duration of field plantings: 4 to 5 years.

Standard of comparison: 'Prairie Gold' maximilian sunflower.

Approximate size of field plantings: Minimum size for range and pasture plantings is five acres and one-half acre for critical area, wildlife, roadside and similar plantings.

Location of field plantings: All MLRAS in North Dakota, MLRAS 58D, 63A (northern half) in South Dakota, MLRAS 56, 57, 88, 90, 91, 92, 93, 94A, and 94B in Minnesota.

<u>Site selection</u>: Maximilian sunflowers prefer moist sites and heavier soils, particularily overflow areas, swales, streambanks, ravines and roadside ditches. Commonly associated with big bluestem communities.

Evaluations: Complete evaluations as required by PMS on Form SCS-ECS-11, Evaluation of Herbaceous Field Plantings.

Summary results: Results will be summarized when trials are complete.

### Long Range Plan for Field Plantings

Species: Helianthus maximiliani Shrad.

Common name: maximilian sunflower.

Accession number: ND-3651, 8065T.

Purpose of field plantings: Evaluate this selection for use in wildlife habitat plantings, range seedings, surface mine reclamation or beautification of transportation corridors and recreational area developments. Stiff upright stems may have potential as vegetative wind barriers. A highly palatable and nutritious livestock forage. Seeds are heavily utilized by birds and other wildlife.

Literature review and background information: Maximilian sunflower is a native, perennial, warm season forb. It grows upright singly or in tight colonies, spreading by seed and heavy rootstalks. Stem heights reach 3-6 feet with conspicuous yellow flower clusters arising on short flower stalks from the leaf axils. Flowers may be present from July through September. It is found on the plains from Saskatchewan and Manitoba south to Missouri and Texas and in some eastern states. Although more abundant in Minnesota and the eastern Dakotas, it is found along streams, near springs and wet areas in the western Dakotas. There are approximately 225,000 seeds/pound.

The origin of this accession is from a silty overflow site in Hughes County, South Dakota. Selected on favorable performance in comparison to 52 other accessions collected in the Dakotas and Minnesota. Criteria for selection included maturity, plant size, vigor, leafiness, number of stems and susceptibility to sunflower rust. Flowering and maturity averages 2 weeks later than selections from North Dakota. Height exceeded 6 feet under cultivation.

Duration of field plantings: 4 to 5 years.

Standard of comparison: 'Prairie Gold' maximilian sunflower.

Approximate size of field plantings: Minimum size for range and pasture plantings is five acres and one-half acre for critical area, wildlife, roadside and similar plantings.

Location of field plantings: All MLRAS in South Dakota; MLRAS 90, 91, 94, 102A, 102B, 103, 104, and 105 in Minnesota; MLRAS 54,

53B (southern half), 55B (southern half), and 56 (southern half) in North Dakota.

<u>Site selection</u>: Prefers deep, fertile lowland, moist sites. Particularily overflow areas, swales, streambanks, ravines and roadside ditches. Commonly associated with big bluestem communities.

<u>Evaluations</u>: Complete evaluations as required by PMS on Form SCS-ECS-11, Evaluation of Herbaceous Field Plantings.

Summary results: Results will be summarized when trials are complete.

### Long Range Plan for Field Plantings

Species: Elymus giganteus Vahl.

Common Name: mammoth wildrye

Accession Number: ND-691, PI-313965

Purpose of Field Plantings: This selection will be evaluated for use as vegetative barriers or windbreaks. Course stem and foliage remain upright in winter and may also prove useful for wildlife food and cover. Its stout creeping habit has potential for stabilizing sand or critical areas.

Literature Review and Background Information: Mammoth wildrye is a tall course, introduced perennial grass, spreading from stout, vigorous rhizomes. Sessile spikelets make up a long dense spike supported by a thick, stiff culm. It is considered moderately palatable to grazing animals. This species can vary in growth from short, slender stemmed plants to thick robust plants up to 6 feet tall depending on moisture. Occasionally, it is grown as an ornamental. It is native to Siberia.

Increase of ND-691 was initiated from vegetative plugs planted in the spring of 1981 after 3 years of initial evaluation. This selection was first received in 1971 from Plant Introduction Station 59, Pullman, Washington which obtained the seed from Russia. This species appears adapted to the cold and droughty conditions of North Dakota. Insect and disease problems appear slight.

Duration of Field Plantings: 4 to 5 years.

Standard of Comparison: Volga mammoth wildrye, and T-16187 mammoth wildrye.

Approximate Size of Field Plantings: Minimum size for pasture is five acres and one half acre for critical area, wildlife, roadside and similar plantings.

Location of Field Plantings: all MLRAS in North Dakota, South Dakota, and Minnesota. Selected sites in Montana, Wyoming, Nebraska, and Kansas.

Site Selection: Adapted to deep sands, sandy loam, droughty porous soil (not especially adapted to gravels). Has exhibited moderate salt tolerance in some clayey saline soils.

Evaluation: Complete evaluations as required by PMS on SCS-ECS-11, Evaluation of Herbaceous Field Plantings.

Summary of Results: Results will be summarized when trials are complete.

### Long Range Plan for Field Plantings

Species: Gleditsia triacanthos L.

Common name: Honeylocust.

Accession number: ND-1879, MDN-10435, 11850T.

<u>Purpose of field plantings</u>: Evaluate this selection for use as a tall or medium tree component of multiple row field and farmstead windbreaks and recreational area developments. It also has potential for wildlife habitat and natural area plantings.

Literature review and background information: Honeylocust is a medium to tall, fast growing, drought resistant tree (18-50 feet). It is adapted to a wide range of soils and can withstand alkaline soils. This species is noted for its zigzag twigs, large 2 to 4 inch thorns and fine textured compound leaves. Its fruit is a large bean shaped pod. Selections can be obtained which are thornless. Winter injury is common in the central and northern areas of South Dakota and all of North Dakota on seedlings grown from poorly adapted seed sources.

ND-1879 is a source selection based on 45 years of performance at the USDA, ARS Station, Mandan, North Dakota and comparison with other locally tested accessions, this accession differs morphologically from common honeylocust. Branches of the parent trees are nearly thornless. The leaflets are slightly smaller, less ellipic and rounded. It appears more winter hardy in North Dakota and South Dakota than seed sources originating from the nearest native sites in northeastern South Dakota and northern Minnesota. Has performed well in most Field Evaluation Plantings in North Dakota, South Dakota and Minnesota.

Duration of field plantings: 10 years.

Standard of comparison: common honeylocust, green ash, manchurian crabaple, Russian olive.

Approximate size of field plantings: Minimum of 25 trees per entry.

Location of field plantings: All MLRAS in South Dakota; MLRAS 53B, 54, 55B, 56 (southern half), 58C; in North Dakota; MLRAS 56 (southern half), 57, 88, 90, 91, 94, 102A, 102B, 103, 104, and 105 in Minnesota. Selected sites in Nebraska, Kansas, Wyoming and Montana.

<u>Site selection</u>: Adapted to moist, well drained bottomlands and limestone soils. Tolerates drought, high PH and salt.

<u>Evaluations</u>: Complete evaluations as required by PMS on Form SCS-ECS-10, Evaluation of Woody Field Plantings.

<u>Summary results</u>: Results will be summarized when trials are complete.

NORTH	DAKOTA SEED INCRE	SEED INCREASE AND PRODUCTION - 1986	9	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )		70 4 5 5 4 7
Area 01	Field Office Devils Lake	Cooperator, Address USDI, F&WS, Devils Lake, ND	Species NDG-965-98 switchgrass	Yr. Pltd. 5 (1978)	Quantity 0	\$ Value
		(701–662–2924)	'Forestburg' switchgrass	5 (1978)	0	
			NDG-4 big bluestem	13 (1984)		
			'Forestburg' switchgrass	31 (1980)	0	
			NDG-965-98 switchgrass	42 (1980)	0	
	•		NDG-965-98 switchgrass	8 (1981)	750	7,500
		(701-466-2518)	NDG-4 big bluestem	8 (1983)	925	11,100
		Mike Rohrer Churches Ferry, ND (701-466-2854)	NDG-965-98 switchgrass	3 (1982)	400	4,000
		Ray Sletteland Churches Ferry, ND	NDG-965-98 switchgrass	30 (1983)	1600	16,000
		Larry Anderson Devils Lake, ND	NDG-965-98 switchgrass	40 (1983)	3410	34,100
	Wahpeton	Fred Schumacher	'Lodorm' green needlegrass	09	8000	000,09
		(701-428-3839)	NDG-965-98 switchgrass	8 (1982)	2400	24,000
			Mandan 759 pub. wheatgrass	23 (1981)	9450	61,425
			'Rodan' western wheatgrass	.24 (1983)	1900	14,250
			NDG-4 big bluestem	(1986)	0	
02		Agron. Seed Farm	'Nordan' crested wheatgrass	1.5	130	455
		(701-347-4743)	'Lodorm' green needlegrass	· ·	860	6,450
			'Vinall' Russian wildrye	2	0	

	Value 3,000	10 70			00	00		12						75	13	97	
	Estimated \$ Value 8,000	7,510			12,500	57,000		55,212						1,575		0,	
	Quantity 800	751	0	0	1000	4560	0	4417	0	0	0	0	0	210	09	420	
	Acres & Yr. Pltd. 36 (1984)	10 (1981) 35 (1982)	8 (1978)	3 (1971)	15 (1983)	20	10 (1981)	20 (1981)	15 (1981)	15 (1982)	5 (1980)	10.5 (1982)	20 (1985)	20 (1983)		<b>&gt;</b>	
9	Species NDG-965-98 switchgrass	NDG-965-98 switchgrass (Cass Co.)	NDG-4 big bluestem (Jamestown)	'Bonilla' big bluestem (Jamestown)	'Pierre' sideoats (Barnes)	'Killdeer' sideoats (Steele)	'Forestburg' switchgrass (Cass)	NDG-4 big bluestem (Cass Co.)	NDG-965-98 switchgrass	'Forestburg' switchgrass	NDG-4 big bluestem	NDG-4 big bluestem	'Tomahawk' indiangrass	'Rosana' western wheatgrass	'Oahe' hackberry	'Sakakawea' silver bufffaloberry	
ASE AND PRODUCTION - 1986	Cooperator, Address John Wentworth	USDI, FWS Valley City, ND							USDI, FWS	Upham, ND	(101–100–2340)			Arvid Anderson (701-228-2398)	NDFS Nursery	(701–537–5636)	
AKOTA SEED INCREASE	Field Office Forman	Valley City							Bottineau						Towner		
NORTH DAKOTA	Area 02								03								

1,400

140

3.0 (1981)

3,980

398

4.0 (1973)

20,652

1721

10.5 (1973)

67,692

5641

20.0 (1974)

'Killdeer' sideoats grama

NDG-965-98 switchgrass

'Pierre' sideoats grama

Lincoln-Oakes Nursery Bismarck, ND (701-223-8575)

Fatimated	\$ Value 175	1325	850	942 299	1020	2450	1750	1937	5,880
	Quantity 45	106	89	145	136	245	140	155	588
Acres &	Yr. Pltd. 1.0 (1960)	1.0 (1977)	1.0 (1977)	s 1.6 (1969) 0.5 (1963)	3.2 (1983)	1.0 (1961)	1.2 (1971)	1.1 (1973) 0.9 (1962) 0.5 (1977)	0.5 (1964) 1.7 (1967) 0.5 (1977)
98	Species 'Garrison' creeping foxtail Fld E-9 (found)	'Pierre' sideoats grama Fld E-8 (found)	'Killdeer' sideoats grama D-11 (found)	Mandan-759 pubescent wheatgrass Fld D-7 (found) E-11 (found)	'Rodan' western wheatgrass Fld E-8	NDG-965-98 switchgrass Fld D-11 (found)	NDG-4 big bluestem Fld D-8 (found) D-9 (found)	'Bonilla' big bluestem Fld D-11 (found) E-13 (found)	'Forestburg' switchgrass Fld E-11 (found) E-12 (found)
ASE AND PRODUCTION - 1986	Cooperator, Address USDA, SCS, PMC Bismarck, ND	(101-223-0330)							
NORTH DAKOTA SEED INCREASE	Field Office Bismarck								
NORTH D	Area 04								

NORTH D	DAKOTA SEED INCREASE	EASE AND PRODUCTION - 1986	9				
Area 04	Field Office Bismarck Cont'd	Cooperator, Address'd.	Species 'Garrison' creeping foxtail	Yr. Pltd. 3 (1981)	Quantity 136	\$ Value 530	
			'Rodan' western wheatgrass	17 (1983)	740	3,300	
			NDG-4 big bluestem	7.5 (1985)	1040	13,000	
			'Midwest' manchurian crabapple		9850	2,167	
			'Sakakawea' silver buffaloberry	À	4475	1,029	
			'Cardan' green ash		14125	3,107	
			SD-131 Mayday		4300	976	
			'Oahe' hackberry		12300	2,706	
			'Centennial' cotoneaster		29900	8,222	
			ND-14 Harbin pear		11525	2,535	
			Schubert Chokecherry		35900	9,873	
			'Imperial' poplar		12325	2,711	
			ND-83 late lilac		60850	13,387	
			ND-20 arnold hawthorn		1950	429	
			ND-283 Russian almond		7875	2,087	
			Scarlet Mongolian cherry		2900	1,209	
0.5	Вомшап	Henry Fischer Rhame, ND	MDN-759 Pubescent wheatgrass	20+80 (1987)	3000	19,500	
	Dickinson	Anton Biel (701-225-6128)	MDN-759 Pubescent wheatgrass	22 (1983)	2600	16,900	
		Milton Bobb	MDN-759 Pubescent wheatgrass	22 (1984)	4000	26,000	
			'Lodorm' green needlegrass 'Nordan' crested wheatgrass	9 (1986) 30 (1986)	1000	7,500	

659,179

77,370 Pounds

Estimated	\$ Value				9,100	50,585
	Quantity 0		0	0	2600	212,058 Seedlings 50,585
Acres &	$\frac{\text{Yr. Pltd.}}{\text{wheatgrass 25 (1977)}}$			110	15	856 Acres
98	Species Mandan-759 pubescent wheatgra	ND)	NDG-965-98 switchgrass	'Nordan' crested wheatgrass	'Vinall' Russian wildrye	TOTAL:
SEED INCREASE AND PRODUCTION - 1986	Cooperator, Address Weiss Seed Cleaning	Plant, Belfield, ND (575-4770, Belfield, ND)	Wm. Weiss, Adm. c/o P.O. Box 641	Bismarck, ND 58502 (701-255-0145)		
	Field Office Dickinson					
NORTH DAKOTA	Area 05					



